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OCTOBER 1959

Volume 28 Number 10

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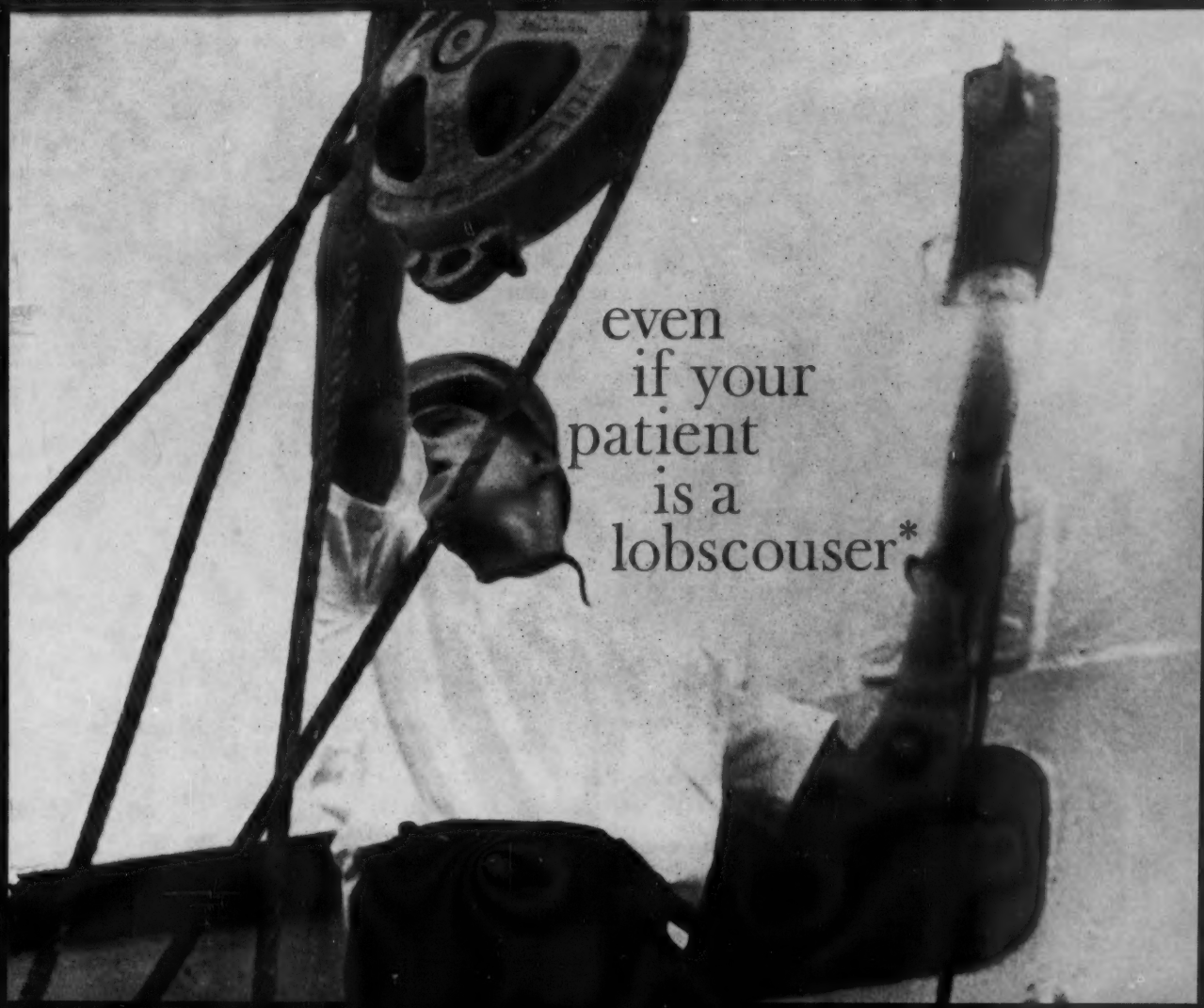

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INDUSTRIAL MEDICINE and SURGERY

ESTABLISHED 1932

The International Journal of Medicine in Industry

OCTOBER, 1959
VOLUME XXVIII
NUMBER 10

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INDUSTRIAL MEDICINE AND SURGERY, The Journal of Medicine in Industry (with which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery"): Entered as second class matter August 28, 1941, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879. Reentered, October 3, 1949. Additional entry at Sheboygan, Wisconsin. Published on the fifth of each month by INDUSTRIAL MEDICINE PUBLISHING COMPANY, Miami, Florida. STEPHEN G. HALOS, Chairman; STEPHEN F. HALOS, President; HAROLD A. HOOPER, Treasurer; CAREY P. MCCORD, M.D., Editor; JOHN A. LAWRENCE, Managing Editor; A. D. CLOUD, Editorial Consultant; LUCILLE H. GROSS, Circulation Manager; T. W. PINKARD, Production Manager. EXECUTIVE OFFICES, 400 S.W. 69th Avenue, Miami 44, Florida. PUBLICATION, EDITORIAL AND CIRCULATION matters should be addressed to P. O. Box 44-306, Miami 44, Florida.

Subscriptions in United States $6.00 per year, $10.00 for 2 years; in Canada $8.00 per year, $14.00 for 2 years; in other countries $12.00 (U.S. Currency) per year, $20.00 for 2 years. Single copies $1.25. Title Registered in United States Patent Office. Registered Canada, 1942.

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PERSONAL NEWS AND NOTES

COL. EDWARD J. DEHNE, commanding officer of the U. S. Army Environmental Health Laboratory, Army Chemical Center, Md., and also consultant to the Surgeon General of the Army in the specialty field of occupational medicine, has moved to a new assignment at Headquarters, Second Army, Ft. George G. Meade, Md.

COL. DEHNE became health officer for the Coos County Health Department in September, 1939. Under his leadership the county health department placed high in the American Public Health Assn., contest in 1941.

A Bachelor of Science graduate of the University of North Dakota, COL. DEHNE received his M.D. degree from the University of Oregon. He received a Master of Public Health degree in 1941 from Johns Hopkins University and a Doctor of Public Health degree in 1955. He is best known for his work in preventive medicine and occupational medicine. He became a member of the Founders Group in Occupational Medicine in 1955. He is a Fellow of the American College of Preventive Medicine, Industrial Medical Association and the American Public Health Association.

From 1944 to 1948 he served in the European Theater, a considerable part of the period as chief of preventive medicine in the Office of Military Government for Germany. He was chief of preventive medicine for the Fifth Army in Chicago from January to July 1948. From August 1948 to August 1950 he headed the Office of Occupational Health and Hygiene of the Army Industrial Hygiene Laboratory and then went to the post of chief of preventive medicine with the Third Army in 1950. From 1951 to 1954 he was chief of preventive medicine, U. S. Army, Caribbean, Canal Zone, Panama.

HARRY E. TEBROCK, M.D., Medical Director of Sylvania Electric Products, Inc., New York, President of the Section on Industrial Medicine and Surgery of the Pan American Medical Association, has announced the appointment of officers who will assist him in organizing and conducting the program of the Section on Industrial Medicine and Surgery for the 35th Anniversary Congress of the Pan American Medical Association which will be held in Mexico City, May 2 to 11, 1960.

DR. TEBROCK has appointed WILLARD MACHLE, M.D. of Boca Raton, Fla., North American Chairman, and B. DIXON HOLLAND, M. D. Secretary of the Council on Industrial Health of the American Medical Association, North American Co-Chairman. UBALDO ROLDAN V., M.D. of Mexico City is Latin American Chairman, with ALEJANDRO CASTANEDO, M.D. of Mexico City, Latin American Co-Chairman. THOMAS E. RIGNEY, M.D. of Standard Oil Company is Secretary of the Section.

Vice Presidents of the Section include: Drs. RAFAEL PENALVER, Havana, Cuba; J. J. BLOOMFIELD, Lima, Peru; JOSE GONZALEZ-QUIJANO, Nuevo Lare-

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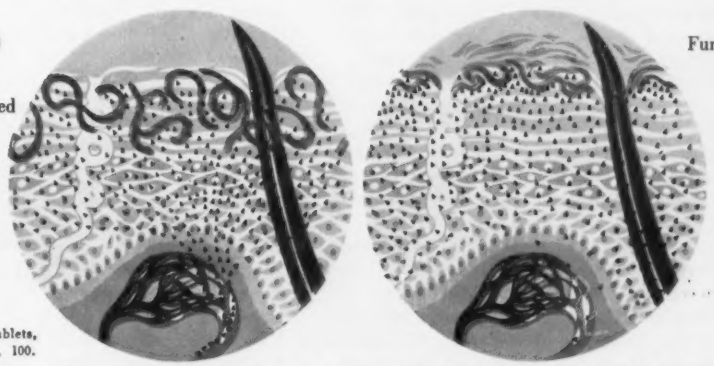

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References: (1) Williams, D. I.; Marten, R. H., and Sarkany, I.: Lancet *2*:1212, 1958. (2) Gentles, J. C.; Barnes, M. J., and Fantes, K. H.: Nature *183*:256, 1959. (3) Brian, P. W.: Curtis, P. J., and Hemming, H. G.: Tr. Brit. Mycol. Soc. *29*:173, 1946.

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do, Mexico; RAFAEL RUIZ, Caracas, Venezuela; O. A. SANDER, Milwaukee, Wis.; LOGAN ROBERTSON, Asheville, N. C.; RUTHERFORD T. JOHNSTONE, Los Angeles, Calif.; and ARTHUR J. VORWALD, Detroit, Mich.

The Council for the Section is composed of DRS. DAVID H. GOLDSTEIN, New York, N. Y.; ARTHUR MASTER, New York, N. Y.; WILLIAM B. DEICHMANN, Coral Gables, Fla.; DUDLEY A. IRWIN, Pittsburgh, Pa.; COL. GEORGE M. KNAUF, USAF (MC), Patrick Air Force Base, Fla.; PEDRO SCHULER, Santiago, Chile; JOSE PEDRO REGGI, Buenos Aires, Argentina; SAMUEL BELGOROD, New York, N. Y.; S. CATALANELLO, Queens Village, N. Y.; LEONARD GREENBERG, New York, N. Y.; HILTON LOPEZ, Santurce, P.R.; GEORGE SAUNDERS, New York, N. Y.; OTIS B. SCHREUDER, Jamaica, N. Y.; JOHN SILSON, Yonkers, N. Y.; JAMES STERNER, Rochester, N. Y.; IRVING TABERSHAW, New York, N. Y.; EUGENE WALSH, Chicago, Ill.; RICHARD E. WINTER, New York, N. Y.; WILLIAM L. WHEELER, New York, N. Y.; MERRIL EISENBUD, New York, N. Y.; MICHAEL M. DACSO, Welfare Island, N. Y.; HERMAN E. HILLBOE, Albany, N. Y.; EDWIN J. GRACE, Brooklyn, N. Y.; JOHN J. POUTAS, New York, N. Y.; KENNETH STRATTON, La Guardia Airport, N. Y.; REX WILSON, Akron, Ohio; GEORGE WOLCOTT, New York, N. Y.; GUSTAVO VINIEGRA, Mexico City; ROBERT MCCAUSLAND, Watertown, N. Y.; HAROLD E. NASH, JR., Boston, Mass.; RAYMOND J. MURRAY, Great Neck, N. Y.; and ALBERT S. HYMAN, New York, N. Y.

Through its 48 different sections, the scientific program of the Congress will include all branches of medicine and surgery. The Pan American Medical Association is dedicated to the enhancement of medical practice through the interchange of medical knowledge and research, and the strengthening of friendship and good will among physicians, peoples and governments of the 22 American nations.

The organization was founded 34 years ago by a group of eminent physicians under the credo: "The practice of medicine has no national, racial or religious boundaries."

GLENN S. EVERTS, M.D., Medical Director of the Curtis Publishing Company of Philadelphia, and WILLIAM L. MACON, JR., M.D., Director of the W. L. Macon Medical Center of St. Louis, have been selected as members of the Medical Advisory Council of the American Association of Industrial Nurses, national industrial nursing specialty organization. The Medical Advisory Council, composed of leading industrial physicians, counsels with the nursing group on matters concerning industrial nursing and assists in formulating statements of principles relating to the industrial medical and nursing professions.

DR. EVERTS, a Fellow and past member of the Board of Directors of the Industrial Medical Association, is a member of The American Board of Preventive Medicine, The Academy of Occupational Medicine and the American Association of Industrial Hygiene. He is also a member of the Board of Governors, Heart Association of Southeastern Pennsylvania and Chairman of the Industrial Health Committee, Safety Section, Philadelphia Chamber of Commerce.

Among other professional groups, DR. MACON is a member of the Industrial Medical Association, American College of Surgeons, Aero Medical Association and the Airline Medical Examiners Association.

MERRILL EISENBUD has been appointed Professor of Industrial Medicine at New York University Post-Graduate School of Medicine and will assume direction of a new laboratory concerned with the study of long range effects of radioactivity on man to be established at the medical center. The announcement was made today by DR. GEORGE E. ARMSTRONG, Director. The laboratory will be a unit of the Institute of Industrial Medicine of which DR. NORTON NELSON is Director.

DR. ARMSTRONG also announced the appointment of DR. ROY E. ALBERT as Associate Professor of Industrial Medicine. DR. ALBERT, who had been associated with PROFESSOR EISENBUD at the Atomic Energy Commission and who was Assistant Director of the Radioisotope Laboratory of George Washington University Hospital in Washington, D. C., will also work on the study.

Organization of the radiation study was made possible by a 10 year grant from the Rockefeller Foundation. The objective of the project will be the evaluation and prevention of radiation hazards for the general population as well as in industry.

PROFESSOR EISENBUD had been associated with the atomic energy program since he joined the Atomic Energy Commission's Health and Safety Laboratory in 1947. In 1949 he was appointed Director of the laboratory which is active in the development of methods for control of hazards from the industrial utilization of atomic energy as well as analysis of world-wide fallout from nuclear weapons testing.

In 1954 MR. EISENBUD was appointed manager of the New York Operations Office and assumed responsibility for the Commission's civilian nuclear power and peacetime research programs in the northeast.

At the request of the Department of State, he has served since 1956 as an alternate U. S. representative to the United Nations Scientific Committee on the Effects of Atomic Radiation. In 1957, on leave from the Atomic Energy Commission, he served as senior scientific advisor on the Preparatory Committee of the International Atomic Energy Agency.

He is a member of several advisory committees to national and international groups, such as the National Academy of Sciences, the National Research Council and the World Health Organization, and also holds membership in numerous professional societies. MR. EISENBUD is a regular contributor to scientific journals, his most recent paper on fallout, "Deposition of Strontium-90 through October 1958," having been published in the July 10 issue of *Science* Magazine.

FOWLER F. WHITE, M.D., general practitioner from West Hartford, Conn., has been named plant physician at Delco-Remy Division succeeding MERRIL P. BENOIT, M.D.

As plant physician, DR. WHITE will be concerned primarily with the care and treatment of medical and surgical cases in the Plant One medical center.

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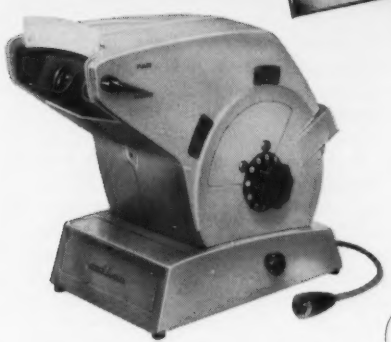

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Dr. White, a native of Wichita Falls, Texas, earned his medical degree from the University of Maryland in 1950. He served an internship at Mercy Hospital in Baltimore and was resident physician in internal medicine at the Lackland Air Force Base, San Antonio, Texas.

Following his first general practice in Georgia, he went to a division of Pratt and Whitney Aircraft in Connecticut as plant physician. He is a former naval aviator.

JOSEPH B. RUFFIN, M.D., has been appointed to the staff of the industrial medical department at Kaiser Steel Corporation's Fontana, California plant.

He comes to Kaiser Steel from Columbus, Ohio, where he was an industrial physician for the past year in the Division of Industrial Hygiene, Ohio State Department of Health.

DR. RUFFIN attended schools in Oak Park, Illinois, and received a Bachelor of Science degree in biological sciences from University of Illinois. Upon graduation, he entered Stritch School of Medicine, Loyola University, Chicago, where he received the Doctor of Medicine degree.

Dr. Ruffin then entered the service and fulfilled his internship at William Beaumont Army Hospital in El Paso, Texas. From 1954-56, he was a captain in the U. S. Army Medical Corps in Japan, serving as a post surgeon.

From 1956-58, Dr. Ruffin attended the Institute of Industrial Health in the graduate school at the University of Cincinnati and is presently a candidate for the Doctor of Science degree.

He is a member of Industrial Medical Association and Phi Beta Kappa.

MERRILL P. BENOIT, M.D., plant physician at Delco-Remy Division for the past 10 years, has been appointed Medical Director of General Motors' AC Spark Plug Division plant in Milwaukee. He will become that industry's first full-time medical director.

DR. BENOIT came to Delco-Remy in 1949 from GM's Harrison Radiator Division in Lockport, N. Y., where he had served as plant physician for two years.

A graduate of Tufts Medical College in Boston, Mass., in 1943, he received his premedical education from Clark University in Worcester, Mass. Following graduation from Tufts DR. BENOIT served with the U. S. Army Medical Corps in the Pacific Theater during World War II. He was discharged as a captain in 1947.

DR. BENOIT is president of the Madison County Medical Society, a position to which he was elected following a five-year term as secretary-treasurer of the organization. He also has been active in Boy Scout work, serving as medical examiner for various programs of the Kikthawenuno Council.

On the state level he is a member of the Insurance Commission of the Indiana State Medical Society and of the Medical Advisory Committee of the Indiana Industrial Nurses' Association.

As a member of the national medical groups DR. BENOIT currently is chairman of the Committee on Medical Economics of the Association of American Physicians and Surgeons, Inc., is a Diplomate of the American Board of Preventive Medicine — Occupational Medicine and is a Fellow of the Industrial Medical Association.

MAJOR GENERAL WILFORD F. HALL, command surgeon of the Headquarters Air Materiel Command at Wright-Patterson Air Force Base, Ohio, has been named to the staff at the University of Cincinnati College of Medicine. He will serve as part-time Associate Clinical Professor of Industrial Medicine, according to ROBERT A. KEHOE, M.D., Director of the UC Institute of Industrial Health, of which Kettering Laboratory is the central unit.

GENERAL HALL will supervise the field training of Air Force personnel who are in their third year of the UC graduate program for occupational medicine and hygiene at the Institute of Industrial Health.

GENERAL HALL played the major role in the development of the concept of air evacuation as the routine method for movement of US military patients world-wide when he was first command surgeon for Military Air Transport Service (1948-1954), one of the world's largest scheduled airlines. This concept so efficiently met the patient movement requirements during the Korean War that it has become the standard method in military medical planning.

As chief medical officer of the Supreme Headquarters Allied Powers Europe, GENERAL HALL was responsible for publishing in April, 1957, the NATO *Emergency War Surgery Handbook*, official reference for treatment in medical emergencies.

As command surgeon at Wright-Patterson, GENERAL HALL is Medical Director of an industry having approximately 200,000 employees engaged in a wide variety of industrial activities.

His service career began in 1928. He is founder of the American Board of Aviation Medicine and the American Rhinologic Society and is now vice chairman of the Section on Preventive Medicine of the American Medical Association.

COL. JOHN P. STAPP, known as the "fastest man alive," another outstanding Air Force officer, was also recently appointed to the UC faculty under DR. KEHOE.

Leading medical and public health authorities from Denmark, England, Ghana, India, Japan, the Soviet Union, Sweden and Yugoslavia will present scientific papers before 5,000 American colleagues at the 87th annual meeting of the American Public Health Association and meetings of related organizations in Convention Hall, Atlantic City, October 19-23.

LEONA BAUMGARTNER, M.D., New York City Commissioner of Health and president of the professional society, said that the theme, Public Health Is One World, has been adopted for the sessions "to stress the importance of public health as a spearhead for international cooperation."

A section on occupational health will be presented, dealing with women in industry; environmental factors in cancer, including occupations and lung can-

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cer, and occupational health as a program area for local health departments.

Among organizations holding sessions during the week will be the American School Health Association, American College of Preventive Medicine, American Association of Public Health Physicians, American Industrial Hygiene Association, Industrial Medical Association, National Health Council, Joint Commission on Mental Health and Illness, and the Public Health Cancer Association of America.

The American Public Health Association, with headquarters at 1790 Broadway, New York, has more than 13,500 members and is the largest American organization of public health specialists. Its executive director is BERWYN F. MATTISON, M.D.

Applications are being solicited for Scientific Exhibits for the 1960 Industrial Health Conference which will be held in Rochester. Exhibits will be shown from April 26 through April 28. Application blanks and information may be obtained from GEORGE A. HARDIE, M.D., Chairman of Scientific Exhibits Committee, 343 State Street, Rochester 4, New York.

The American Association of Poison Control Centers now has formalized its organization. Annual memberships for individuals are $2.00. Contact DR. ARTHUR S. BLANK, Poison Information Center, Connecticut State Department of Health, Hartford 15, Connecticut.

New York University Postgraduate Medical School, Institute of Industrial Medicine, and the College of Engineering, with the cooperation of the U. S. Atomic Energy Commission, offers five courses in radiological health: "Introduction to Radiological Health," October 12-23, 1959, "Radiological Health Laboratory," October 26-November 6, 1959, "Radiochemical Analysis," November 9-20, 1959, "Medical and Public Health Control of Ionizing Radiation," March 7-18, 1960, and "Radiation Hygiene Measurements," April 18-May 13, 1960. These courses are intended for persons already trained in one of the physical, engineering, biological or medical sciences who require a comprehensive introduction to the new techniques and methods associated with radiological hazard evaluation. For further information, write: Office of the Associate Dean, New York University Postgraduate Medical School, 550 First Avenue, New York 16.

New York University-Bellevue Medical Center, Institute of Physical Medicine and Rehabilitation offers a 3-week seminar in physical rehabilitation methods for nurses, October 19-November 6, 1959; January 4-January 22, 1960, and March 28-April 15, 1960. The course will include severe disabilities and their rehabilitation; skills and methods of functional activities; clinical observation and practice, and field trips. A series of similar courses, "Advanced Physical Rehabilitation Methods for Physical/Occupational Therapists," will be offered November 16-December 11, 1959; February 1- February 26, 1960, and April 25-May 20, 1960. For further information, write: Mrs. Edith Buchwald Lawton, Director, Postgraduate Education for Paramedical Personnel, New York University-Bellevue Medical Center, Institute of Physical Medicine and Rehabilitation, 400 East 34th Street, New York 16.

New York University Postgraduate Medical School, Institute of Industrial Medicine, with the College of Engineering, offers a course in air pollution November 30-December 11, 1959. Among the topics covered will be: toxic emissions, micrometeorology, sampling and analysis, power plants, pollution control in specific industries and public relations. The two-week intensive course is intended for engineers, physicians, industrial hygienists and others concerned with the problem of community air pollution. For further information, write: Office of the Associate Dean, New York University Postgraduate Medical School, 550 First Avenue, New York 16.

A full-time one-week course in industrial health for nurses will be given November 2, 1959 by the Department of Industrial Medicine of New York University Post-Graduate Medical School, a unit of NYU-Bellevue Medical Center.

The course, limited to 50 nurses engaged in industrial nursing, will be given under the direction of DR. DAVID H. GOLDSTEIN, Professor of Industrial Medicine at the Post-Graduate Medical School.

Applications for Course 484 should be sent to the Dean, NYU Post-Graduate Medical School, 550 First Avenue, New York 16, New York.

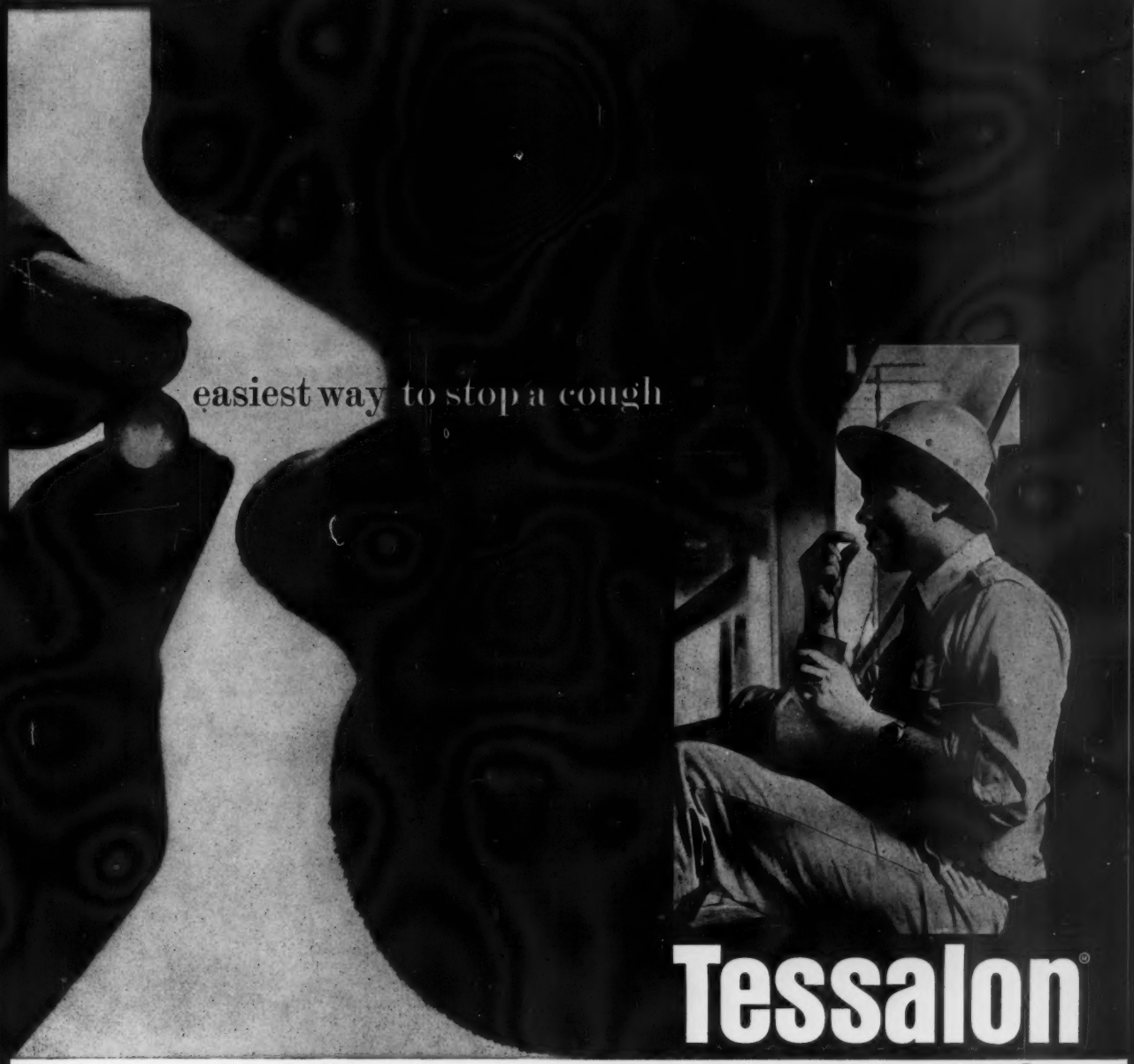
Died

MAX R. BURNELL, M.D., in Flint, Michigan, on September 18. He was Medical Director of General Motors for 10 years, from 1949 to November, 1958, when he retired. Previous to 1949, he was Medical Director of the A. C. Spark Plug Division of General Motors. In 1952 he received the William S. Knudsen Award from the Industrial Medical Association.

DR. BURNELL was graduated from the University of Michigan Medical School in 1918. He was a United States member of the International Commission on Occupational Health and a Fellow of the Industrial Medical Association.

E. T. P. ZESSIN, M.D., 70, of Galesburg, Illinois, of a stroke. DR. ZESSIN had been a physician with Burlington Railroad for 39 years. He was born in Chicago and received his M.D. degree from Chicago College of Medicine and Surgery in 1914.

CASSIUS HINDS WATSON, M.D., 80, in Stamford, Connecticut. He was graduated from Long Island College in 1905 and was elected to active membership in 1913. He served as Medical Director of American Telephone and Telegraph Company of New York from 1915 to 1943. He was an instructor at his alma mater and at Pratt Institute in Brooklyn. He was former President of American Association of Industrial Physicians and Surgeons; Fellow of American College of Surgeons; and former President of Stony Wold Sanatorium, Lake Kushaqua, New York.



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Tessalon perles stop cough fast—and they're convenient to take. No mess, no spillage, no awkward spoons or bottles to carry around. Another advantage: *no taste*. An exact, effective dose is sealed in a tiny gelatin sphere.

Reasons *why* Tessalon stops cough so effectively: it acts where cough begins—in the chest; it acts at the cough reflex center—in the medulla; it acts promptly—within 15 to 20 minutes, the effect lasting up to 8 hours. Tessalon is *not* a narcotic, yet has been reported 2½ times more effective than codeine in suppressing cough.[1]

SUPPLIED: Tessalon *Perles*, 100 mg. (yellow); bottles of 100. Tessalon *Pediatric Perles* (for children under 10), 50 mg. (red); bottles of 100. *Also available* (for use when oral administration of Tessalon is precluded): *Ampuls*, 1 ml. (5 mg.); cartons of 5.

1. Shane, S. J., Krzyski, T. K., and Copp, S. E.: Canad. M. A. J. 77:600 (Sept. 15) 1957.

TESSALON® (benzonatate CIBA)

CIBA

Summit, New Jersey

Remember
SERPASIL®
(reserpine CIBA)
for the anxious hypertensive with or without tachycardia

2/2726MK

NOW

. . . a new way to relieve pain and stiffness in muscles and joints

INDICATED IN:

MUSCLE STIFFNESS

LUMBOSACRAL STRAIN

SACROILIAC STRAIN

WHIPLASH INJURY

BURSITIS

SPRAINS

TENOSYNOVITIS

FIBROSITIS

FIBROMYOSITIS

LOW BACK PAIN

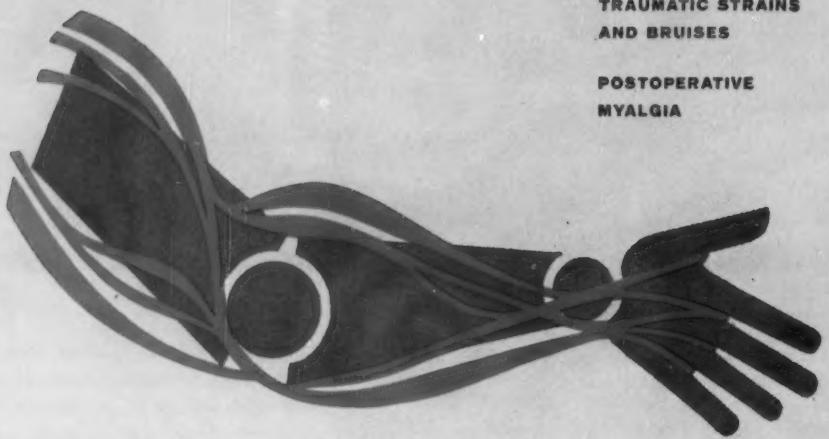
DISC SYNDROME

SPRAINED BACK

"TIGHT NECK"

TRAUMATIC STRAINS AND BRUISES

POSTOPERATIVE MYALGIA



■ Exhibits unusual analgesic properties, different from those of any other drug ■ Specific and superior in relief of SOMAtic pain ■ Modifies central perception of pain without abolishing natural defense reflexes ■ Relaxes abnormal tension of skeletal muscle

SOMA™

N-isopropyl-2-methyl-2-propyl-1, 3-propanediol dicarbamate

■ More specific than salicylates ■ Less drastic than steroids

■ More effective than muscle relaxants

SOMA has an unique analgesic action. It apparently modifies central pain perception without abolishing peripheral pain reflexes. SOMA is particularly effective in relieving joint pain. Patients say that they feel better and sleep better with SOMA than with any previously used analgesic, sedative or relaxant drug.
SOMA also relaxes muscle hypertonia, with its stresses on related joints, ligaments and skeletal structures.

ACTS FAST. Pain-relieving and relaxant effects start in 30 minutes and last 6 hours.

NOTABLY SAFE. Toxicity of SOMA is extremely low. No effects on liver, endocrine system, blood pressure, blood picture or urine have been reported. Some patients may become sleepy on high dosage.

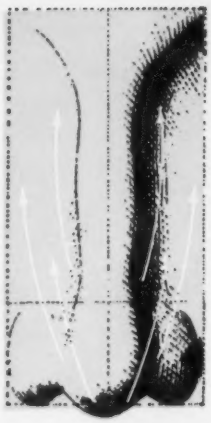
EASY TO USE. Usual adult dose is one 350 mg. tablet 3 times daily and at bedtime.

SUPPLIED: Bottles of 50 white sugar-coated 350 mg. tablets.

Literature and samples on request.

WALLACE LABORATORIES, NEW BRUNSWICK, N. J.

why **BIOMYDRIN** fulfills the seven requirements of a **"NOSE OPENER"**



1. Biomydrin **penetrates** the mucous barrier.
2. Biomydrin **spreads** almost instantly.
3. Biomydrin **clears** the air passages.
4. Biomydrin **decongests** without causing rebound congestion.
5. Biomydrin **controls** the allergic component.
6. Biomydrin **combats** infections.
7. Biomydrin is **safe**— so safe that no pediatric dosage form is needed.

Thonzonium bromide 0.05%; Neomycin sulfate 0.1%; Gramicidin 0.005%; Thonzylamine HCl 1.0%; Phenylephrine HCl 0.25%.

BIOMYDRIN®

nasal spray / drops

WARNER CHILCOTT

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He pays for cigarettes he never smokes

As a matter of fact, he never even opens the packs. This laboratory representative is collecting samples . . . samples of The American Tobacco Company's five famous brands. They're sent, untouched, to our Research Laboratory in Richmond, Virginia.

There, the cellophane wraps are carefully slit in half and removed from each pack. Then each half is separately tested for airtightness on a special laboratory device (see inset).

This test is part of a continuous, painstaking check on our cigarettes' freshness. Since factory freshness is guarded by the cellophane wrapper on each pack, all cellophane is tested before we use it. But the final test comes when the wrappers from packs actually purchased in stores are tested.

The freshness test is repeated hundreds of times each year. It helps make American Tobacco's brands the cigarettes of matchless quality.

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FIRST IN CIGARETTE RESEARCH

LUCKY STRIKE • PALL MALL • HIT PARADE • HERBERT TAREYTON • DUAL FILTER TAREYTON

KILLS THEM ALL

In Topical Infections, regardless of etiology, BETADINE OINTMENT destroys all pathogens present. BETADINE OINTMENT, a single topical agent, is a full-range pathogenicide—kills bacteria, fungi, protozoa, yeasts, and viruses on contact. Yet it is nonsensitizing, nonirritating, and nontoxic to normal skin tissue.

BETADINE OINTMENT • topical pathogenicide • fully effective against resistant strains • destroys gram-positive and gram-negative organisms • kills fungi, protozoa, yeasts, viruses • no development of resistant strains on prolonged use • provides protective barrier against invading pathogens • nonsensitizing . . . relieves pain • color indicates germicidal protection • applies easily . . . may be bandaged.

indications: primary and secondary skin infections including pyoderma, mycotic and bacterial infections, eczema, furunculosis, minor burns, as well as staph. aureus and pseudomonas infections.

administration: apply liberally over affected area as often as needed, bandage if desired.

supplied: one ounce tube.

BETADINE™ OINTMENT

(CONTAINS POVIDONE-IODINE)

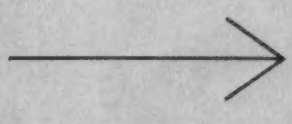
TOPICAL PATHOGENICIDE ... KILLS PATHOGENS ON CONTACT

established in 1905 TAILBY-NASON COMPANY, INC., DOVER, DELAWARE

A REMINDER FROM MERCK SHARP & DOHME:

NOW IS THE TIME TO ORDER INFLUENZA VIRUS VACCINE POLYVALENT

Ordering your requirements <u>now</u> will assure you of sufficient vaccine when it is needed to protect your personnel and patients.



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Postage Will be Paid by Addressee

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To make certain that you have an adequate supply of Influenza Virus Vaccine Polyvalent when the need arises, you should order vaccine now. Order for immediate delivery or, if you prefer, at whatever future date you specify.

Vaccination against influenza is inexpensive—and is the most effective way of minimizing the risk of contracting this highly contagious disease which causes so much debilitation and absenteeism.

By anticipating your needs and ordering now, you can be certain that you will have enough vaccine for your personnel and patients.

Influenza Virus Vaccine Polyvalent

Contains the National Institutes of Health approved polyvalent strains Types A and B, including Asian Strain.

Dosage:
Detailed dosage information may be found in the package circular contained in each carton.

For complete information, write Professional Services, Merck Sharp & Dohme, West Point, Pa.

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MERCK SHARP & DOHME
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Please ship the following to arrive on _____
(specify delivery date)

_____ *10 cc. vials Influenza Virus Vaccine Polyvalent*

Ship to: _____
(Street address)
_____
(City and State)

Bill to: _____
(Street address)
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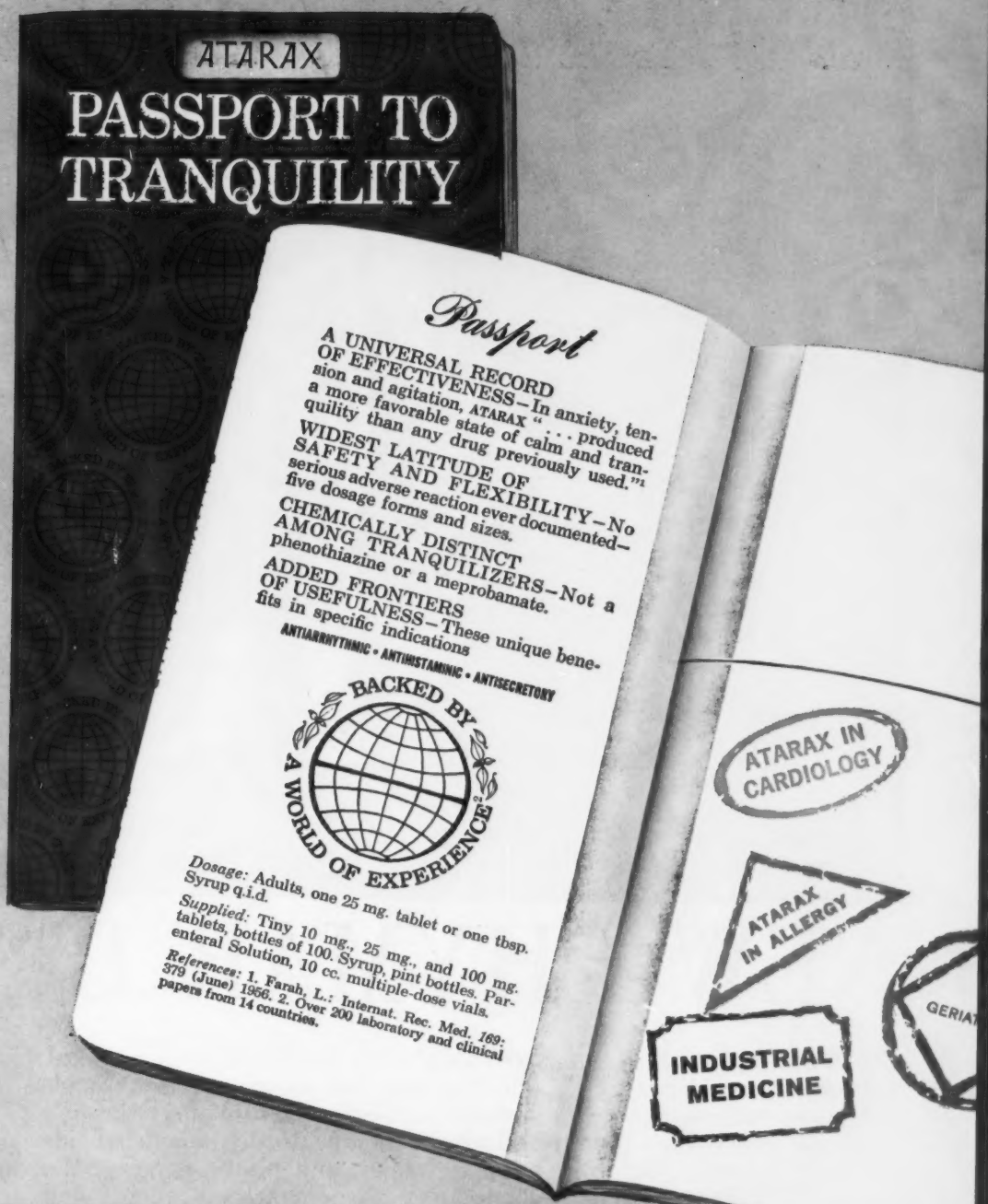
(City and State)

Purchase order number _____


ATARAX
PASSPORT TO TRANQUILITY
Passport
A UNIVERSAL RECORD OF EFFECTIVENESS—In anxiety, tension and agitation, ATARAX "... produced a more favorable state of calm and tranquility than any drug previously used."[1]
WIDEST LATITUDE OF SAFETY AND FLEXIBILITY—No serious adverse reaction ever documented—five dosage forms and sizes.
CHEMICALLY DISTINCT AMONG TRANQUILIZERS—Not a phenothiazine or a meprobamate.
ADDED FRONTIERS OF USEFULNESS—These unique benefits in specific indications
ANTIARRHYTHMIC • ANTIHISTAMINIC • ANTISECRETORY
BACKED BY A WORLD OF EXPERIENCE
Dosage: Adults, one 25 mg. tablet or one tbsp. Syrup q.i.d.
Supplied: Tiny 10 mg., 25 mg., and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.
References: 1. Farah, L.: Internat. Rec. Med. 169: 379 (June) 1956. 2. Over 200 laboratory and clinical papers from 14 countries.
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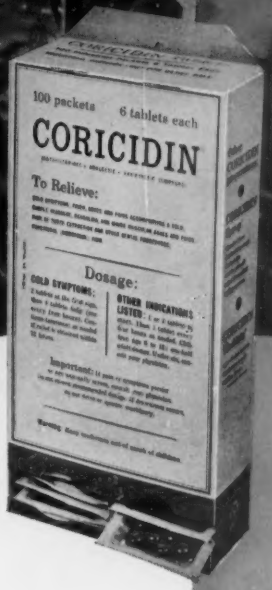
NEW: CHYMAR® Buccal

controls inflammation, swelling and pain... Chymar Buccal tablets release chymotrypsin directly into the blood stream through the buccal mucosa exerting a powerful anti-inflammatory effect through systemic action. Used prophylactically or therapeutically in hemorrhoidectomies, biopsies, cellulitis, mammectomies, and plastic surgery, the tablets prevent or reduce inflammatory tissue reactions, edema and hematoma. Chymar Buccal has been found to provide gratifying relief from pain in post-tonsillectomies and is unusually effective for prevention or reduction of testicular and cord swelling in hernia repairs. *Chymar Buccal may be used as the sole anti-inflammatory agent in many conditions. In more severe cases, the vigorous anti-inflammatory response obtained with injectable Chymar—Aqueous or in Oil—can be satisfactorily maintained with Chymar Buccal Tablets.*

CHYMAR *THE SUPERIOR ANTI-INFLAMMATORY ENZYME*

ARMOUR PHARMACEUTICAL COMPANY • KANKAKEE, ILLINOIS/*Armour Means Protection*

to keep employees
on the job
put this to work



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TABLETS

taken at work or at home
cuts down absenteeism due to

colds

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muscular aches and pains

Available in convenient industrial dispensing package containing 100 packets of 6 tablets each.

CORICIDIN,® brand of analgesic-antipyretic.

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BREAKTHROUGH IN THE TREATMENT OF RINGWORM INFECTIONS

GRiFULVIN®

Griseofulvin

ORALLY EFFECTIVE IN FUNGOUS INFECTIONS OF SKIN, HAIR, AND NAILS[1-4]

DRAMATIC IMPROVEMENT IN TRADITIONALLY REFRACTORY RINGWORM INFECTIONS

Tinea of the toenails of 7 years' duration—after 4 months of treatment with GRIFULVIN. Infecting organism, **Trichophyton rubrum.**

Same patient after 6 months of treatment with GRIFULVIN. Infection has cleared; healthy nail growth is almost complete.

McNEIL

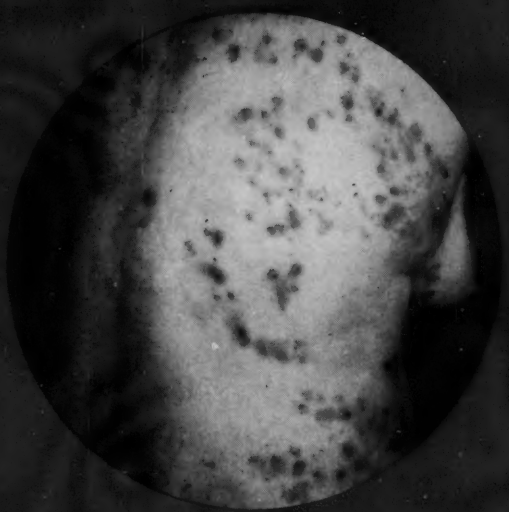
McNEIL LABORATORIES, INC • PHILADELPHIA 32, PA.

- *Tinea corporis* usually clears in 2 to 4 weeks; itching stops in 3 to 5 days
- *Tinea pedis* improves in 1 to 2 weeks; complete clearing may require 3 to 6 weeks
- *Tinea capitis* improves in 2 to 3 weeks; is usually cured in 3 to 5 weeks
- *Onychomycosis* (tinea of the nails) fingernails clear in 3 to 4 months; new normal growth is seen earlier; toenails require longer treatment
- Oral GRIFULVIN appears to have a very low level of toxicity

Literature on details of administration and dosage is available upon request.

Supplied: 250 mg. scored, aquamarine tablets, imprinted McNEIL, bottles of 16 and 100.

(1) Blank, H., and Roth, F. J.: A.M.A. Arch. Dermat. *79*:259 (March) 1959. (2) Williams, D. I.; Marten, R. H., and Sarkany, I.: Lancet 2:1212 (Dec. 6) 1958. (3) Goldfarb, N., and Rosenthal, S. A.: Current M. Digest *26*:67 (April) 1959. (4) Wrong, N. M.: Canad. M.A.J. *80*:656 (April 15) 1959.



Before treatment—tinea of the body of 9 years' duration. Infecting organism, **Trichophyton rubrum.**

After 18 days of treatment with GRIFULVIN. Healing is virtually complete.

Photographs courtesy of Harvey Blank, M.D., Miami, Fla. The patients shown above received GRIFULVIN (griseofulvin, McNEIL)

BASIC
THERAPY

for the skin
troubled by
rash
chafing
irritations
lacerations
ulcerations
burns
rawness

DESITIN®
OINTMENT
THE PIONEER EXTERNAL
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soothing • protective • healing

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DISPOSABLE
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EASY-ENTRY POINTS
smooth, drag-free penetration
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FULL-PROTECTION SHEATHS
in the package—after filling—
to the moment of injection
now in sizes to meet most parenteral needs
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"COUGH...

one of the most frequent symptoms for which the patient seeks medical attention."[1]

SYNEPHRICOL®

ANTIHISTAMINIC • DECONGESTANT

Cough Syrup

...relieves the cough due to colds
...eases the allergic cough

●

Synephricol acts by prompt and prolonged decongestion of bronchial mucous membranes, by mild central sedation, and by decreasing sensitivity of the pharyngeal mucosa through antihistaminic action.

FORMULA:
(4 cc. teaspoonful)

Neo-Synephrine® hydrochloride	5.0 mg.
Thenfadil® hydrochloride	4.0 mg.
Dihydrocodeinone bitartrate*	1.33 mg.
Potassium guaiacol sulfonate	70.0 mg.
Ammonium chloride	70.0 mg.
Menthol	1.0 mg.
Chloroform	0.0166 cc.
Alcohol	8%

*Exempt narcotic

DOSAGE:

Adults—1 or 2 teaspoonfuls every two to four hours, not to exceed 5 doses in twenty-four hours.

Children 6 to 12 years—½ to 1 teaspoonful four or five times daily.

BOTTLES OF 1 PINT AND 1 U. S. GALLON.

Winthrop LABORATORIES
NEW YORK 18, N. Y.

1. Banyai, A. L.: Management of Cough in Daily Practice. *J.A.M.A.*, 148:501, Feb. 16, 1952.

Synephricol, Neo-Synephrine (brand of phenylephrine) and Thenfadil (brand of thenyldiamine), trademarks reg. U.S. Pat. Off.

The tyranny of the clock

For many diabetics, time is a tyrant. No matter how inconvenient it may be, they must take their meals and injections "by the clock," or risk extremely disquieting reactions.

Orinase* makes it possible for you to lift this burden from most of these insulin-dependent patients. Given in conjunction with insulin, it smooths out the "peaks and valleys" of erratic blood sugar levels . . ."stabilizes" a surprising percentage of brittle diabetics.

At the same time, it may enable you to reduce the insulin dosage for many insulin-dependent diabetics.

*TRADEMARK, REG. U. S. PAT. OFF. — TOLBUTAMIDE, UPJOHN

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HEAVY METAL POISONING
is still a Formidable Threat

...but now Calcium Disodium VERSENATE provides a dependably effective means of removing lead and other heavy metals from the body...and *without danger of organ damage.* Calcium Disodium VERSENATE is available in both oral and intravenous preparations; the intravenous form for safe, effective, dramatic short-term treatment; the oral form for convenient prevention of exacerbations or as sole therapy for milder types of lead poisoning.

NOW IN 2 DOSAGE FORMS

INTRAVENOUS—Complete instructions for dilution and administration accompany the ampuls. The average daily dose for an adult is 1 to 2 Gm. per day, given as two infusions. For children, the dose is not more than 0.5 Gm. per 35 pounds of body weight, given once or twice daily. Boxes of six 5 cc. (1 Gm.) ampuls.

ORAL—Average adult dose is 8 tablets (4 Gm.) per day, in divided doses. For children, the dose is adjusted on the basis of 2 tablets (1 Gm.) per 35 pounds of body weight daily, in divided doses. For ease of administration tablets may be crushed and dissolved in milk. In bottles of 250 tablets, each containing 500 mg.

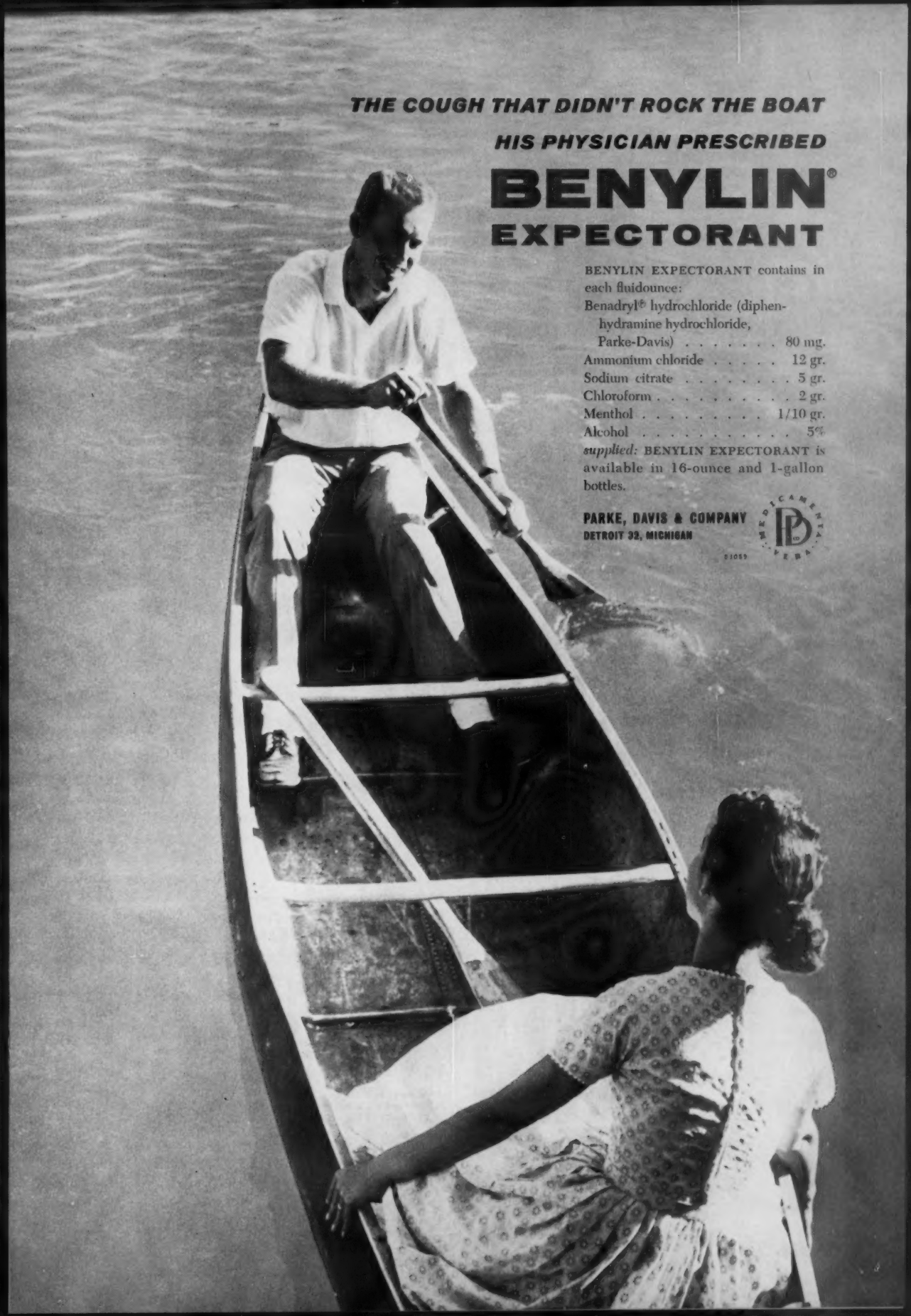
Write for descriptive literature.

Calcium Disodium **VERSENATE***

spells the answer

*Trademark of Dow Chemical Co.

Riker NORTHRIDGE, CALIFORNIA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HIS PHYSICIAN PRESCRIBED
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EXPECTORANT
BENYLIN EXPECTORANT contains in each fluidounce:
Benadryl® hydrochloride (diphenhydramine hydrochloride, Parke-Davis) . . . . . 80 mg.
Ammonium chloride . . . . . 12 gr.
Sodium citrate . . . . . 5 gr.
Chloroform . . . . . 2 gr.
Menthol . . . . . 1/10 gr.
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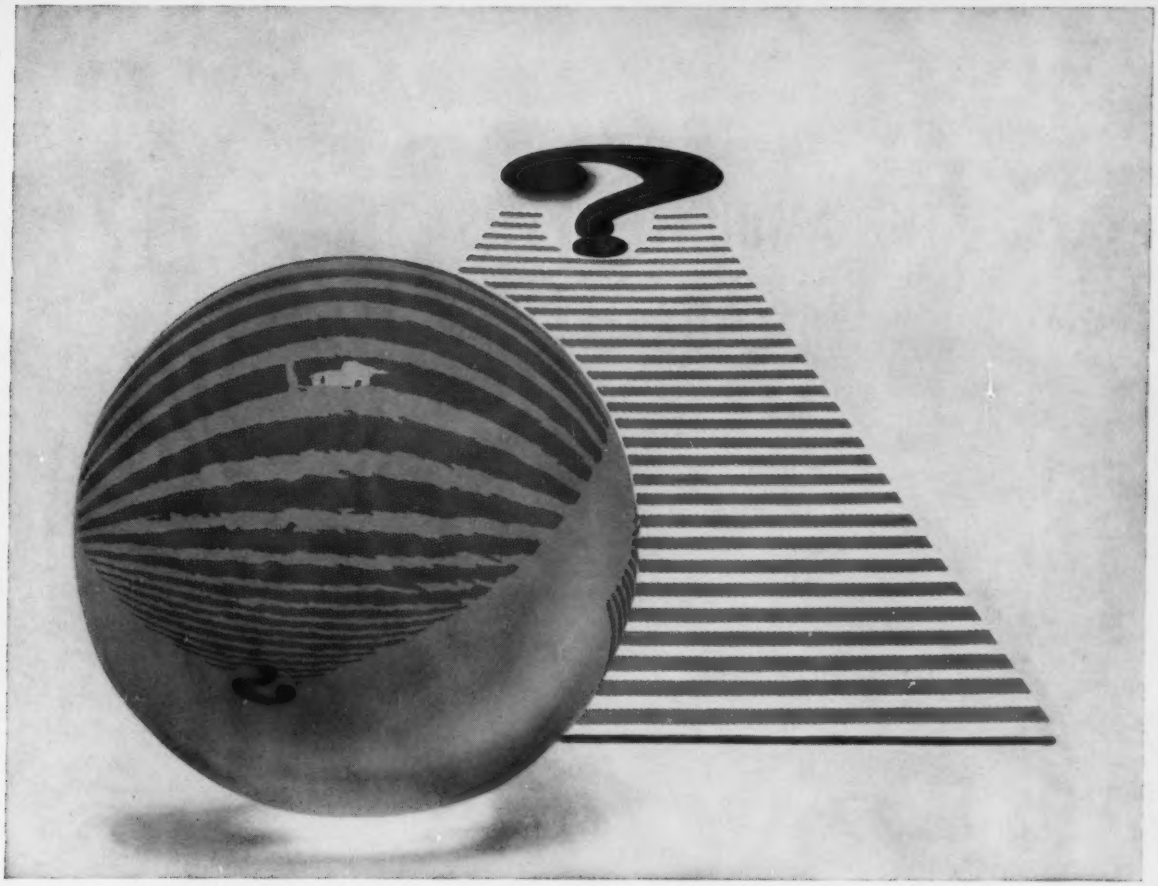

what lurks beyond the broad spectrum?

"Broad spectrum" has evolved into an especially apt term to describe a growing number of "specialized" antibiotics. These provide the best means of destroying pathogenic bacteria which range all the way from large protozoa through gram-negative and gram-positive bacteria to certain viruses at the far end of the spectrum.

But beyond the spectrum lurk pathogenic fungi. Aggressive infections often require intensive broad spectrum antibiotic attack. It becomes more apparent every day that fungal superinfections may occur during or following a course of such therapy.[1,2] Long term debilitating disease, diabetes, pregnancy, corticosteroid therapy, and other causes may predispose to such fungal infections[1,3,4] as iatrogenic moniliasis. These facts complicate the administration of antibiotics.

Mysteclin-V controls both – infection and superinfection. Mysteclin-V makes a telling assault on bacterial infections and, in addition, prevents the potentially dangerous monilial overgrowth.[2,5-8] Mysteclin-V is a combination of the phosphate complex of tetracycline – for reliable control of most infections encountered in daily practice – and Mycostatin, the first safe antifungal antibiotic.

Case history after case history marked "recovered" provides clinical evidence of the special merit of this advance in specially designed antibiotics. When you prescribe Mysteclin-V, you provide "broad therapy" with extra protection that extends beyond the spectrum of ordinary antibiotics.

'MYSTECLIN'®, 'SUMYCIN'®, AND 'MYCOSTATIN'® ARE SQUIBB TRADEMARKS

Supplied:	Tetracycline Phosphate Complex equiv. Tetracycline HCl (mg.)	Mycostatin units
Mysteclin-V Capsules (per capsule)	250	250,000
Mysteclin-V Half-Strength Capsules (per capsule)	125	125,000
Mysteclin-V Suspension (per 5 cc.)	125	125,000
Mysteclin-V Pediatric Drops (per cc. – 20 drops)	100	100,000

References: 1. Dowling, H. F.: Postgrad. Med. 23:594 (June) 1958. 2. Gimble, A. I.; Shea, J. G., and Katz, S.: Antibiotics Annual 1955-1956, New York, Medical Encyclopedia Inc., 1956, p. 676. 3. Long, P. H., in Kneeland, Y., Jr., and Wortis, S. B.: Bull. New York Acad. Med. 33:552 (Aug.) 1957. 4. Rein, C. R.; Lewis, L. A., and Dick, L. A.: Antibiotic Med. & Clin. Ther. 4:771 (Dec.) 1957. 5. Stone, M. L., and Mersheimer, W. L.: Antibiotics Annual 1955-1956, New York, Medical Encyclopedia Inc., 1956, p. 862. 6. Campbell, E. A.; Prigot, A., and Dorsey, G. M.: Antibiotic Med. & Clin. Ther. 4:817 (Dec.) 1957. 7. Chamberlain, C.; Burros, H. M., and Borromeo, V.: Antibiotic Med. & Clin. Ther. 5:521 (Aug.) 1958. 8. Prom, F., and Alli, J. H.: Antibiotic Med. & Clin. Ther. 5:639 (Nov.) 1958.

Mysteclin - V

SQUIBB TETRACYCLINE PHOSPHATE COMPLEX (SUMYCIN) AND NYSTATIN (MYCOSTATIN)

SQUIBB

Squibb Quality – the Priceless Ingredient

With PHENAPHEN 'ROBINS' for medical relief of pain—

"THE AMOUNT OF LOST TIME ...WAS GREATLY REDUCED"

*— reports this industrial physician**

In his recent on-the-job study of pain relief in industrial practice, Murray* observed that:

1. Phenaphen is more effective than a standard aspirin-phenacetin-caffeine formula for relief of moderate to severe pain . . .

2. Phenaphen is free from side effects despite its greater analgesic action . . .

3. Phenaphen is safe for machine operators since it is free from soporific effects, and thus permits returning to work or driving home with complete safety . . .

4. The superiority of Phenaphen is shown by the fact that "the amount of lost time . . . was greatly reduced."*

Formula: Each capsule contains:

Acetylsalicylic acid (2½ gr.)	162 mg.
Phenacetin (3 gr.)	194 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine sulfate (1/2000 gr.)	0.031 mg.

Dosage: One or two capsules as required. In industrial practice, Murray noted that "because of the complete absence of side effects, it is justifiable to increase the medication to two tablets every four hours."*

Supply: Bottles of 100 and 500 capsules.

*Dr. R. J. Murray, Medical Dept., Sperry Gyroscope Co., in an article published in the New York State Journal of Medicine, August 15, 1953 (Vol. 53, No. 16).

PHENAPHEN®

Robins

— superior analgesic for ambulant patients
*—"satisfactory for everyday industrial use"**

For more severe pain, Phenaphen is also available with varying dosages of codeine added to the basic formula, providing greater analgesia, free from the habituation hazards of addicting narcotics, as:

PHENAPHEN WITH CODEINE PHOSPHATE ¼ GR. *(Phenaphen No. 2)*

PHENAPHEN WITH CODEINE PHOSPHATE ½ GR. *(Phenaphen No. 3)*

PHENAPHEN WITH CODEINE PHOSPHATE 1 GR. *(Phenaphen No. 4)*

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New films for the surgeon

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A detailed demonstration of a technic which is designed to anticipate and prevent many of the serious complications of cataract surgery. In addition to the procedure itself, the film covers preoperative preparation, the induction of anesthesia and akinesia, and postoperative care. Each step in the procedure is shown first from the operative site, and then (at greater magnification) from the surgeon's viewpoint.
16 mm., color, sound, 15 min.

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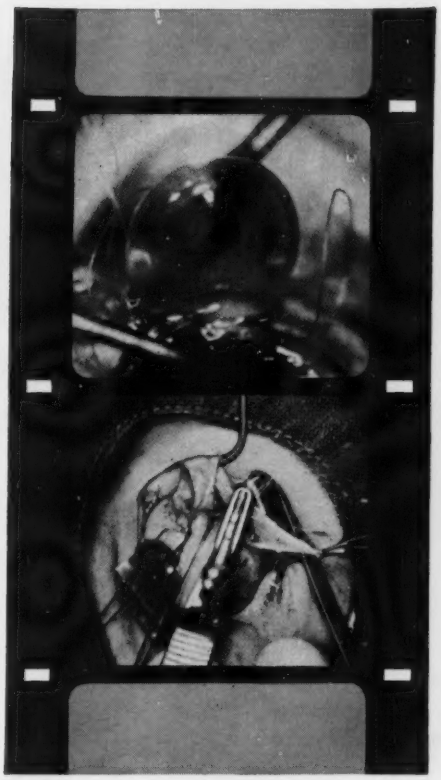

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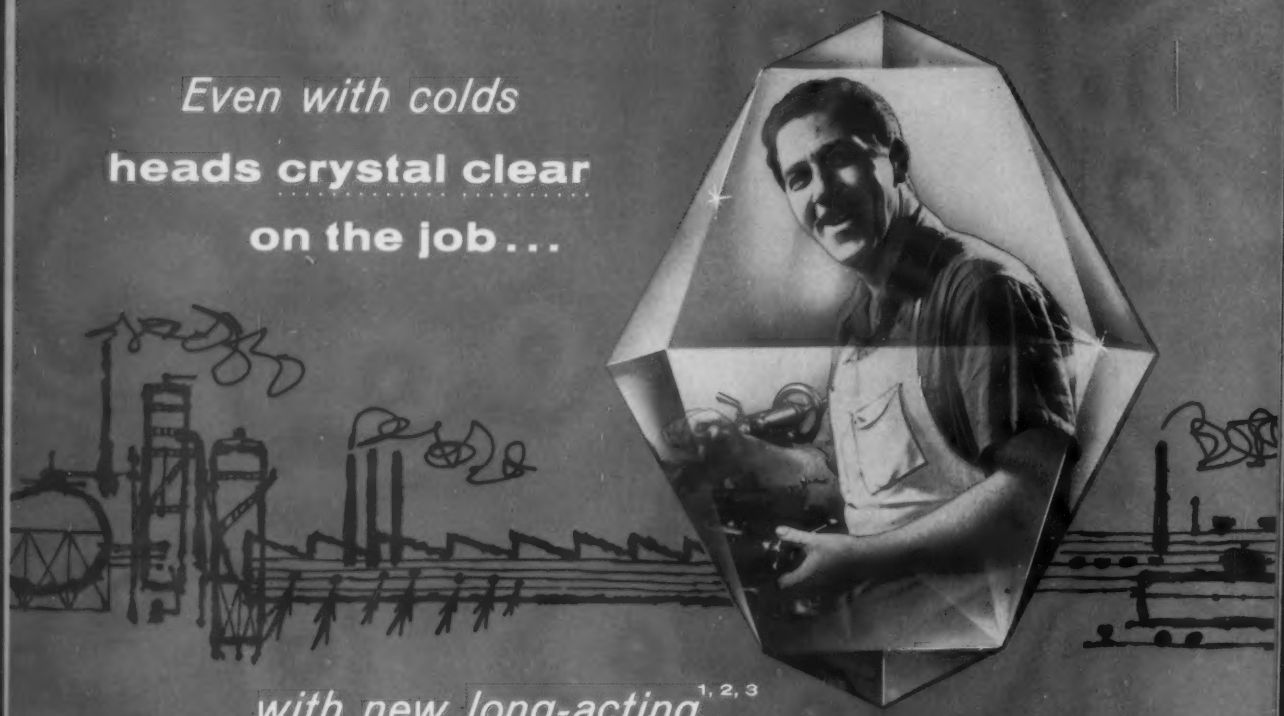

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1. Lawler, E.G. and Limperis, N. M.: Clin. Med. (Dec.) 1958. 2. Medical Science 3:376-377 (Mar 25) 1958. 3. Cavallito, C.J. and Jewell, R.: J. Am. Pharm. A. (Scient. Ed.) 47:165-168, 1958. 4. Antibiotic Med. & Clin. Therapy 5:578-581 (Sept.) 1958.

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Dosage: 100 or 200 mg. orally three or four times daily. Relief of symptoms occurs in fifteen to thirty minutes and lasts from four to six hours.

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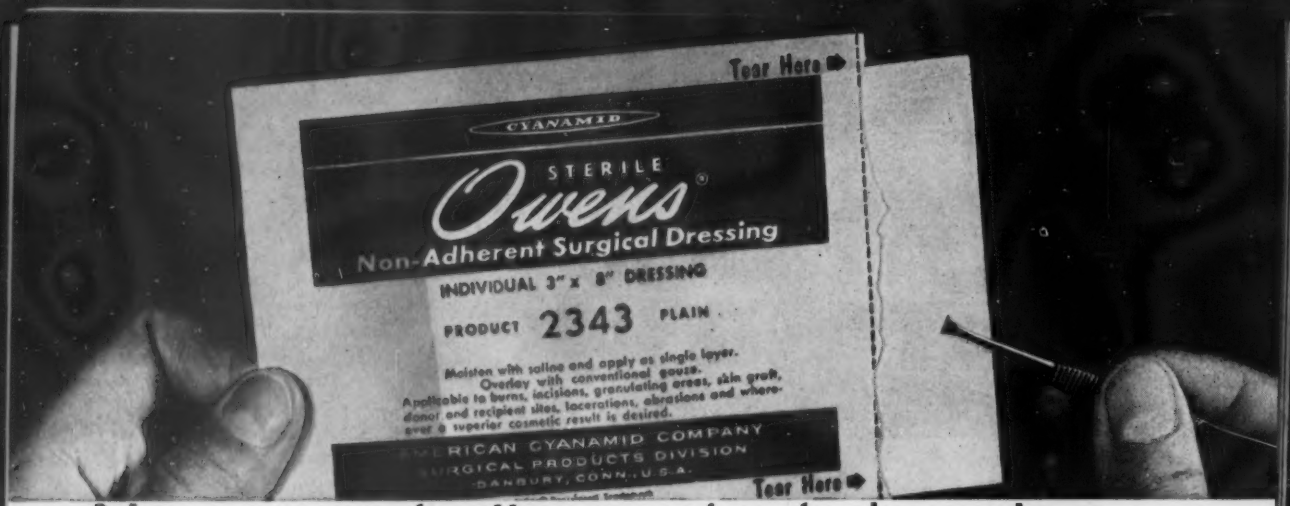
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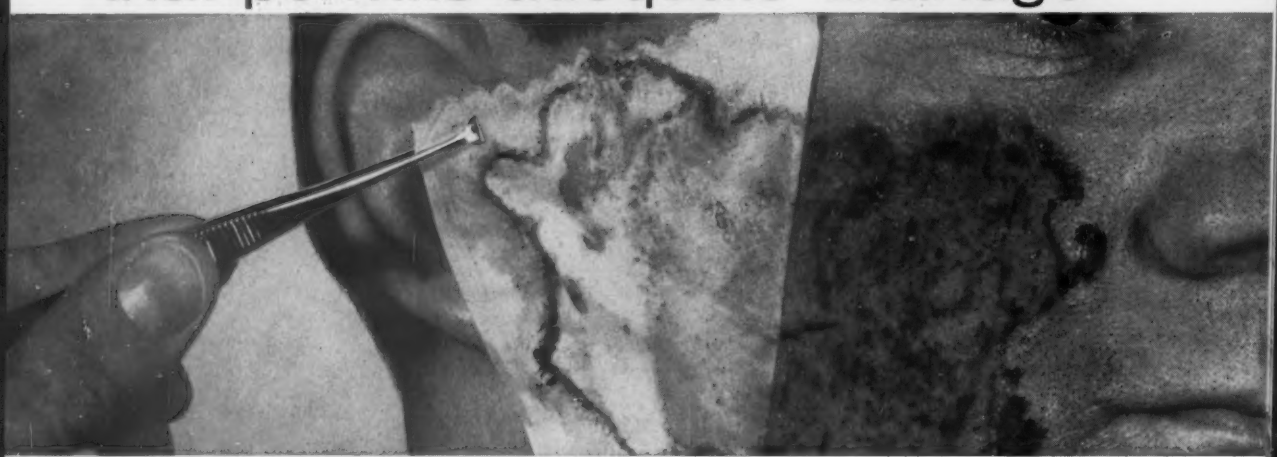

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[1] Thomson, J. E. M.: Am. J. Surgery 91:418, 1956

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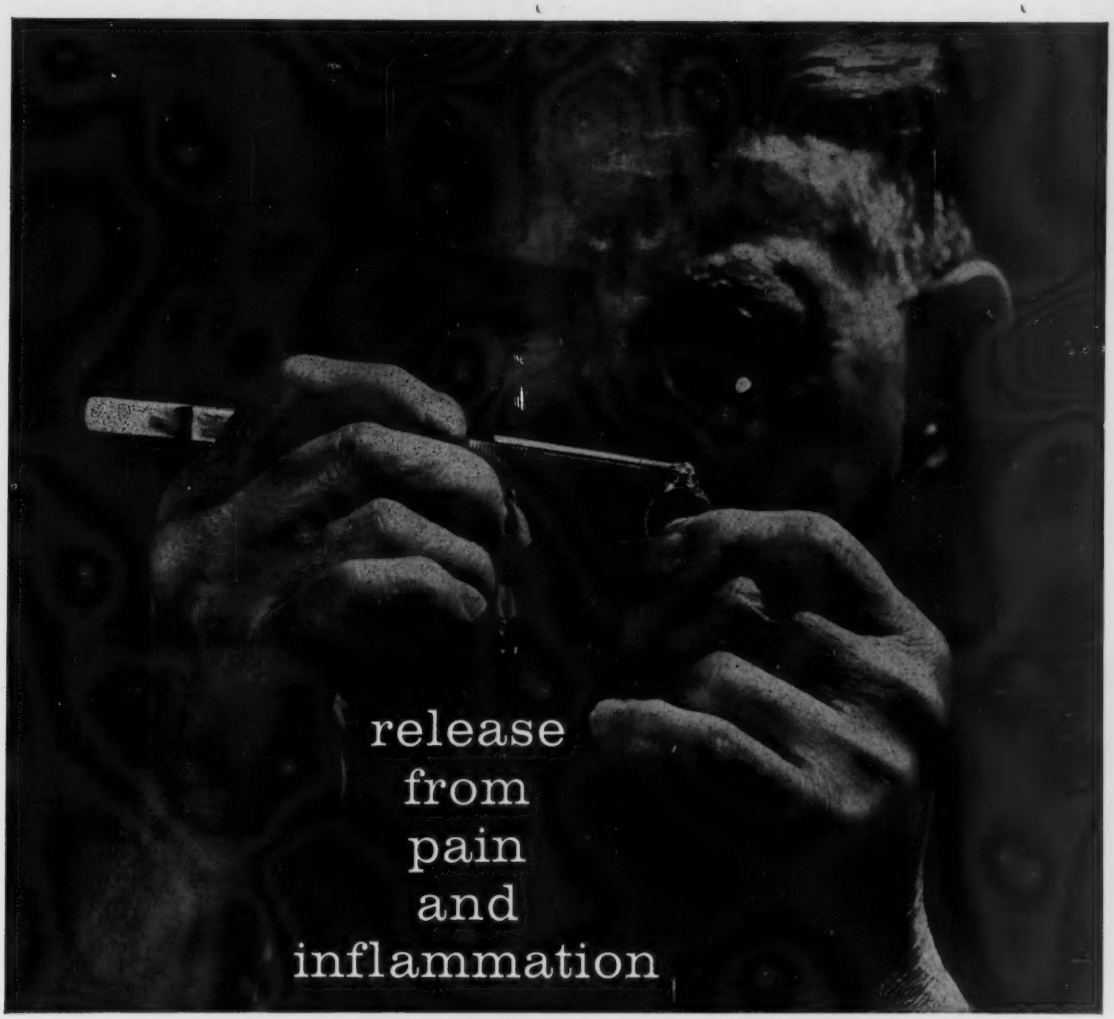

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Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

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- **ALLERGIC DISORDERS**

Minimizes the Hazard of Drowsiness on the Job

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Unique 3-layer decongestant tablet development offers a combination of ingredients never before possible to put into a single tablet.

DRISTAN — *Faster In Therapeutic Action*

Regular Enteric Coated Tablet	3-Layer Uncoated Dristan Tablet
Disintegrates in 3 hours	Disintegrates in 7 minutes

Dristan Decongestant Tablets—afford *a new degree of relief* from the symptoms of sinusitis, nasal allergies, postnasal drip and the common cold by releasing:

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References: Annals of Allergy, Vol. 6. July-August 1948. Study of a New Histamine Antagonist, The Pennsylvania Med. J., Vol. 51. Clinical Study of a New Antihistaminic Drug—Phenindamine. Dristan Clinical Study.

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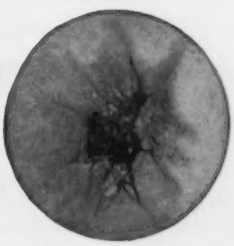

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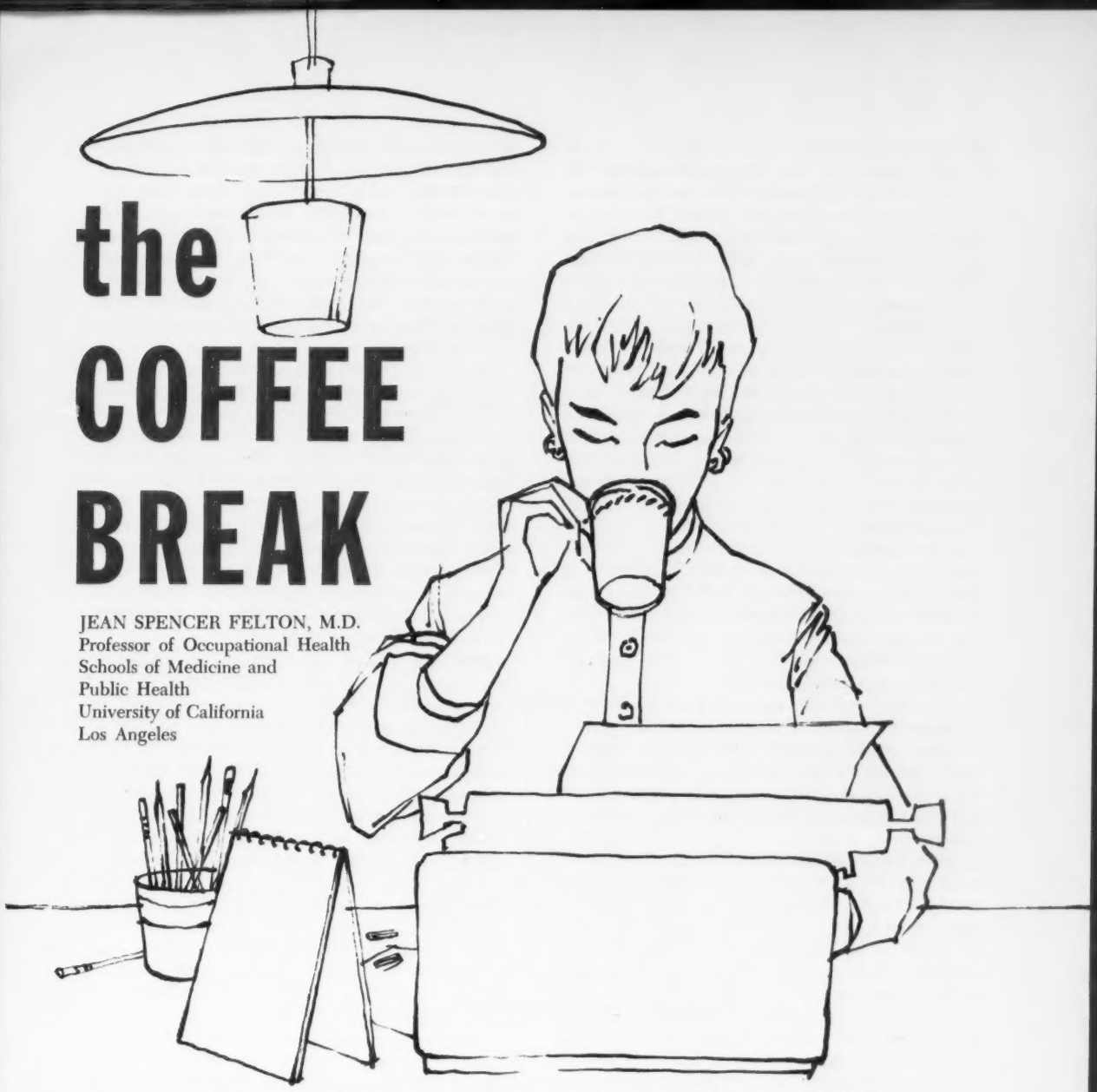
the COFFEE BREAK

JEAN SPENCER FELTON, M.D.
Professor of Occupational Health
Schools of Medicine and
Public Health
University of California
Los Angeles



Is the coffee break in industry a health asset or liability?

All degrees of society mingled freely in the coffee-houses and a bond of common sympathy came to unite the coffee men. Their opinion became a formidable moral and political force and as criticism of the government was freely and vigorously expressed the restored Charles II and his ministers attempted to put down these "nurseries of sedition and rebellion." In 1675 Charles, with a rashness remarkable even in him, issued a Proclamation for the Suppression of Coffee-houses. Within eleven days the fury of the popular outcry forced the King to countermand the order, and he never seriously challenged the coffee-house again.
—Old English Coffee-Houses

In the wake of all global conflicts are to be found the major upheavals of nations and peoples that carve from age-old empires and ideologies new social groups. The healing of the losers' wounds or the victors' inflation-depression cycles produces new ways of life unpredicted by the most discerning of sociologists. On an international scale, democracies have formed, communistically "protected" countries have withered and, currently, colonials are testing in bloody fashion, the solidarity of newly-won freedoms.

Concerning us more for the moment than the change in political theory is the restructuring of work behavior patterns. Not beyond the

memory of most of us is the 12-hour day, which shrank modestly to the 10-hour period on the job, only to be followed by further contraction to the eight-hour span of labor. At an unidentified point in history, sometime in the early 1940's, there came upon the war production scene the concept of regularly scheduled rest periods, spaced equitably within the time units of labor in the factory, the office, the store. Whereas previously there was an intermittent exodus to water fountain or restroom (Americans are so highly skilled in the creation of euphemistic speech) there now appeared temporary cessations of work of short duration. In some areas it was soon heard in verbal currency that a worker was "on her break." Designations for this new phenomenon have included "fatigue time," "personal allowance period," "start-up time," "shut-down time," "washup time," "recreation time" and "spellout." In New York, a salesgirl was "off the flaw," but in most areas, this change of tempo in productive output became known as the coffee break, which, to this remote post-war day, has remained in our industrial lexicon.

As sloganeers and gagsters furnish us with evanescent bits of freshness for our speech, masters of other media pick up the new in verbal expression and introduce it for its chuckle or bellylaugh value. Soon, the phrase and the cultural activity it denotes are in our speech and reading.

In an issue of the *Saturday Evening Post*,[1] under the heading used periodically, "The Face of America," there appeared a page-and-a-half color photo of a Prudential Life Insurance Company office (Chicago) scene entitled "Coffee Break." Shown are 10 persons with paper coffee cups, with one of the office wolf-types draped over the portable canteen, trying his luck with a not too responsive girl who is pouring her morning beverage. (He used to be the water bottle conversationalist.) In the background is a supervisor checking his watch, and three others are working, essentially with cup in hand. A Weinert cartoon[2] depicted a gabbing office quintette over the caption, "Before getting down to work it is necessary to review the week-end before, during and after the coffee-break." The editorial column of *Modern Photography* carries the heading, "Coffee Break with the Editors."A petroleum company's house organ[3] tells the story of bringing oil to the surface in Venezuela, and an illustration shows a supervisor in the field "taking time out for coffee" from his Thermos bottle, and a county medical society bulletin's editorial[4] is given the title, "Conversation at a Coffee Break." An advertisement for a tape-recording watchclock[5] carries a drawing of a coffee-drinking watchman with the caption, "2 Million Dollar Coffee Break," and the lines, "This Texas watchman took an unauthorized coffee break. Hearing a noise . . . he discovered the freight section in flames. Firemen were too late to prevent a $1,950,000 loss." "Coffee conferences" have been held in plants where the company pays for doughnuts and drink so that its supervisors can discuss business problems with their work groups during the break period.[6]

The coffee break has become a part of medical meetings, and shown in a photograph in a medical news weekly[7] are two physicians, with appropriate lapel labels and coffee cups, the cut lines reading, "Sharing coffee break during Mayo Clinic and Foundation's 1958 Reviews . . ." Not to be remiss in spotting the off beat news item, *Coronet*[8] quoted this comment from a West Coast newspaper on its "Public Notice" page: "In Pasadena, California, a tea company holding a sales meeting included in the schedule of events listed on a bulletin board in the lobby: '10 a.m. — Coffee break.'"

Two long playing records have appeared under the titles "Coffee Break,"[9] and "Coffee Time,"[10] and some of the Ferris A. Benda comments on the colorful envelope's flip-side are worthy of notice: "Recently uncovered hieroglyphics show that several pyramids, including the cooperative one at Luxor, were built only because the workers were allowed a 10-minute morning and afternoon break each working day to draw a cup of coffee from a lad lugging a steaming goatskin.

"In Rome, at the height of Empire, the cry was '*Nullus Sucrum*' — which means the Romans like theirs black and hearty.

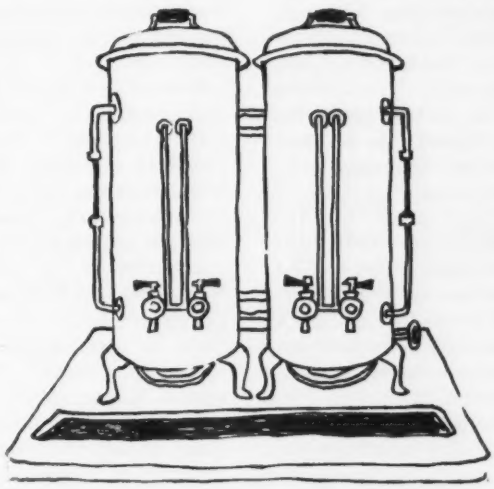
"Even at the polar bases, where days are six months long, everyone knocks off for a few weeks to drink coffee and munch brownies.

"The coffee break has replaced the seventh-inning stretch in some of the more minor leagues. While the players cluster around the pitcher's mound for coffee and Danish pastry, the fans in the stands play catch. A recent magazine article on just this subject received wide acclaim at the onion-growers' convention in Terre Haute, although no one could quite determine why.

"Newspapermen are notorious coffee-breakers. Between assignments, between stories, and even between paragraphs, they have been known to send some hapless youngster out into the rain and fog for coffee. In turn, the copy boys retaliate by jumbling orders so hopelessly that the reporters and rewrite men often become gourmets without realizing it. Where but in the city room of a large metropolitan daily could one order regular coffee and a sugar cruller and be served (several hours later) a container of

warm lentil soup, a salami sandwich on whole-wheat bread, a vanilla milk shake, and a paper bag containing blueberry pie and ice cream? There are songs here for every coffee break mood. Some are just right for vigorous stirring. Others are perfect for languid stirring, or for pouring sugar out of a container on a damp day. There are some songs absolutely incomparable for taking first sips by. There are even several songs by which you can ask for seconds, or rinse out your cup, if you happen to be through."

A manufacturer of water coolers uses on his postage meter the slogan, "Controls the 'COFFEE BREAK' — HOT'N COLD WATER COOLER."[11] Recently produced is a mug bearing the words, "FOR MY COFFEE BREAK," done in a coffee-color tone. And finally, the fourth estate's famed collector of clichés, Frank Sullivan,[12] suggested that as long as we have coffee and tea breaks, why not rest breaks? — a siesta a day for the American businessman. So our language is enriched by the addition of a term whose origin is lost in our World War II history.



Rest Periods

The reasoning behind this work-stoppage of 10 to 15 minutes twice daily? First is the fact that employees will observe a rest period, whether authorized or not, and managers queried on the point have displayed attitudes coursing from "enthusiastic approval to a sort of reluctant acquiescence, or acknowledgement that employees today will take a rest period whether it is granted or not, so why not go through the motions of making it formal."[13]

Not too well documented are the impressions that fatigue increases at the midmorning and midafternoon periods, and, when uncorrected, results in lowered production and increased injuries (accidents) in late morning and late afternoon.

As early as 1919 Spaeth[14] observed that between 10 a.m. and noon there is a maximum output by workers, and that during the same period the accident frequency rose also. In the afternoon, when output was found to decrease almost steadily, the rate of accident occurrence rose to a peak between 3 and 4 p.m. Vernon[15] noted the same findings three years later, stating that the maximum accident rate could be as much as two to four times as great as that noted during the first hour.

Haggard and Greenberg[16] working in a Connecticut factory in 1936, out of the Yale Laboratory of Applied Physiology, observed that muscular efficiency was lowest before breakfast, and without breakfast, the low level remained. Further, they found that there were production falls in late morning and late afternoon, and recommended that the usual three meals per day be increased to five, with the total quantity and the quality unchanged, to combat this drop. The Division of Industrial Safety, California State Department of Industrial Relations,[17] demonstrated that there were two peaks in the day in all industries when the greatest number of injuries occurred — 10:30 a.m. and 3:30 p.m. Samuelson[18] believes that this coincides with the normal three to four hour postprandial hypoglycemic symptoms, and feels that between-meal feeding can elevate the blood sugar level,* possibly reducing the number of accidents sustained.

To compensate for the fatigue pattern, companies have granted periods away from work of five to 15 minutes, during which time food and beverages have been made available. Nutritionists since the eruptive days of early '42 have expressed concern over the inadequate or missed breakfast, and have tried to induce employers to provide or have available, milk or buttermilk, converting the event to a snack-break.[23] Moore[24] believes that rest pauses are necessary when these conditions exist: "a. When the work is repetitive or monotonous, or when it is of such a nature that

*Certain writers have believed that the increased output following food intake demonstrates the play of psychologic rather than physiologic factors — or even represents the effect of unidentified factors. These controversial opinions were summed up by Pike[19] who has given these two conclusions regarding workers doing jobs of moderate activity: "a. Provided the daily diet supplies the full needs for nutrients, the number of meals into which it is divided does not appear to be crucial. b. The nutritionist must always remember that industrial efficiency is influenced by very many factors other than diet." Haldi and Wynn[20] have demonstrated that there was no relation, within experimental limits, between the level of blood sugar and capacity for work, rendering untenable one of the foundation slants of Haggard and Greenberg's arguments. In a review of the subject of diet and industrial performance[21] and in other writings,[22] it was pointed up that the introduction of rest periods and the provision of refreshments were unquestionably important from the viewpoint of industrial efficiency, but probably unrelated to the blood sugar ebb or flow. It is of interest to note that in England the name of the Industrial Fatigue Board was changed to Industrial Health Board.

intense concentration of attention is necessary; b. When the work is of such a nature that continuous sitting or standing is necessary; c. When workers are under constant severe physical strain; d. When workers are exposed to extreme heat or unfavorable ventilating conditions. He further cited several authors who claimed a 2% to 400% production increase following the introduction of breaks of varying length, and a manufacturer of brake linings and belting has demonstrated a decline in lost-time accidents from 47.2 per million man hours worked, prior to the inauguration of a company-supplied milk rest period, to 11.6 following the inception of the new program. Believing that such scattered time intervals in the work schedule boosted morale, the Federal Government encouraged this practice among workers in armament jobs.[25]

The perpetuation of the wartime-initiated custom was predicted by Norton[26] when he commented in 1944, "What about the future for rest periods? It seems certain that rest periods will hereafter get increasing attention and adoption, both in offices and factories. The human relations angle in business and the welfare of workers are gaining recognition as important factors in business management. Perhaps in the postwar period they may be one point to mention in attracting the highest type of employees, and in keeping them as happy and healthy as possible while they work."

Company Practice

Periodically, surveys have been taken to determine company policies and practices in granting coffee break privileges.[27,29,30,31] The findings, in essence, were that 70% to 90% of more than 1,500 companies throughout the country granted some form of employee coffee break.

Some observations made during a survey conducted by the Paper Cup and Container Institute[28] in 1950 are of interest. The manager of a midwestern plant was quoted: "If a $2-an-hour man drops his tools for 20 minutes to get himself a cup of coffee, that coffee sets me back 66¢. If I can cut as much as three minutes off the stop, it will pay me to buy the coffee and give it to him free." One company serving free coffee felt that it "helped to reduce inspection-line rejects." Cost has always been a factor — old-time craftsmen usually take their coffee black, while women use cream and sugar. If the company provides the coffee, and if they employ women, it costs more.

The publication, *The American City*,[32] questioned municipal governments in 304 cities, all operating with city managers, representing 50,900 employees. In only two, coffee breaks were not tolerated, and in 52% the breaks were not officially recognized but, generally, were permitted. Staggering of these periods was accomplished in 45% "to keep the office manned." In most instances, the employees themselves controlled the practice sufficiently, obviating administrative regulatory action. The leading reason for perpetuating the practice in these groups was the improvement in morale.

Dimensions of the Break Period

To lend a size interest to this contemporary practice, certain survey figures and estimates are available[33] which will portray its magnitude.

35 million workers utilize rest periods as coffee breaks.

8 billion cups of coffee are consumed annually during coffee breaks — 7.4% of all coffee drunk in the United States.

24 million persons on a typical winter day have a coffee break and drink coffee in the morning, the afternoon, or on both occasions.

42% of all coffee consumed away from home is drunk on the premises at work.

15% of all coffee consumed by the homemaker is drunk at midmorning and midafternoon — the coffee break is the housewife's institution also.

When the work entity of the coffee break is considered in the light of operating costs — as a fringe benefit — other data are offered. The monetary equivalent of today's fringe benefits, or nonwage payments, is 50¢ per hour.[34] In 1955 the average annual cost of fringe benefits, was $819 per employee, $89 of which was allocated to rest periods.[35] On the same basis, rest periods today cost the employer almost 5.5¢ per employee per hour, and the cost extrapolated to 1975 for rest periods, paid lunch periods, etc., is 20¢ per employee per hour out of a total cost of $1 per hour.[36]

The national expenditure for food includes some revealing numbers regarding the money involved in the purchase of beverages. In 1957, the spending for nonalcoholic beverages — coffee, tea and soft drinks — totaled $3.8 billion, expected to reach in 1965, $5.3 billion.[37] The average amount expended per family is $70 per year, coffee representing 60% of this amount. This concept of entitlement to coffee breaks has entered, also, the personnel policies of physician's offices. Included among benefits given physicians' employees is the coffee break: 57% of physician-employers grant these in one-girl offices, 69% in two-or-more-girl offices.[38] When considering the dimensional values of the rest period, one cannot overlook the most effective utilization of our scientific personnel. Aiming, as we are, toward the training of the greatest number of scientists and engineers, it is of interest to know that an interdependent relationship exists between such distantly polar insti-

tutions as scientific manpower and work pauses. In a survey conducted of Southern California scientists, it was learned that "scientists frequently spend time on unassigned activities, personal projects, unnecessary reading, and excessive coffee breaks."[39] Strange, that with a group customarily separated culturally from most of the nation's workers, one can find the same time-consuming activities which plague most of us.

In essence, obeisance to the industrial societal practice of structured withdrawal from work is costly and involves all persons from executive to extractor of waste. This new way of work-life has affected nearly everyone in the group living of industry.

Legislative Action and the Rest Period

The early studies of production in heavy industry have demonstrated the value of having employees cease their work periodically to permit a physiologic rebalancing, particularly in hot work environments. With increased awareness of needs for temporary stoppages and the spontaneous development of these respites from the job — authorized or taken without sanction — it became necessary to write into the labor codes of some of the states, provisions for specified rest periods. In the jurisdictions where these provisions exist, the reference is made to rest periods of brief duration, and not to longer intervals for lunch or other midshift meals.

Of the 64 jurisdictions in the United States and Canada reported on,[40] 15 (23.4%) had specific provisions regarding rest periods and, in the main, employees were authorized a 10 minute work-free period in the morning and afternoon, usually for each four-hour session. In all instances, with the exception of three (Hawaii, New York, and Puerto Rico) the legislative acts referred specifically to women employees, or to women and minors. Twenty-one of the directors or chairmen of industrial commissions granted that the taking of a coffee break was recognized as a feature of today's work pattern. With the great love of round numbers demonstrated by most Americans, 10 minutes seemed to be the desirable temporal unit, but actual timing of the activity — the walk to the source of coffee, the wait in line, the conversation, the return, the visit to the restroom (for the euphemistic "resting," and for women, reapplication of make-up) probably would show that the authorized 10 minute period is exceeded.

On occasions, specific agencies of the Federal government have authorized rest periods, in keeping with good industrial relations principles. In one instance, the usual two pauses of 10 minutes each are noted: "Heads of VA establishments may at their discretion authorize brief periods during which employees may interrupt work to obtain refreshments, or relief from fatigue or constant attending to duty. There shall be no more than two such periods during any single eight hour period and they should normally not exceed 10 minutes each. They should be so staggered as to maintain adequate coverage of essential functions at the immediate work locale. Appropriate supervisory officials are responsible for so controlling the use of such periods that there clearly is no abuse of this privilege."[41]

That the daily rest period is not an international custom is given testimony by an action of the International Labor Office. Whereas many workers in the United States might feel a certain deprivation of rights if the coffee break were not granted, workers abroad only recently have had the *weekly* rest period considered as a legitimate fringe benefit. At the 40th Conference of the International Labor Organization, recommendations were adopted at Geneva on June 26, 1957, regarding authorized absentation from work each week. The Convention — "an international instrument" — maintained that "all persons . . . shall be entitled to an uninterrupted weekly rest period comprising not less than 24 hours in the course of each period of seven days," and that "persons to whom such special schemes apply do not work for more than three weeks without receiving the rest periods to which they are entitled."[42]

Other legal concomitants have entered this scheme and, on occasions, courts have ruled as to the recognition of rest periods as legitimate time components of the workday for which there can be no deduction in pay. As an example: In 1956, a Court of Appeals decision ruled "that a 15 minute coffee break must be considered as time worked and paid for as such,"[43] reversing the opinion of a District Court. Interestingly, the brief prepared by the Department of Labor attorneys in the case was a 34-page printed document[43b] in which federal court practice, survey findings of nongovernmental research bureaus, federal interpretations, and writings of physicians, psychologists, and university professors were cited to help substantiate the appellant's argument that short rest periods constitute compensable working time under the Fair Labor Standards Act of 1938, as amended. It was held that coffee breaks were "beneficial to the employees," and were "equally beneficial to the employer in that they promote more efficiency and result in a greater output." Further, the court decisions read, "We may well take judicial knowledge of the fact . . . that coffee breaks . . . are rapidly becoming an accepted part of employment generally."[43c]

The entity of the break has entered into collective bargaining agreements. In an analysis made by the Bureau of Labor Statistics[44] it was seen that paid rest periods during regular working hours were provided by nearly one-fourth of 1842 agreements received. In the group of 417 spelling out the allowances, about 1.6 million workers were covered and concerned a broad variety of industries, with manufacturing accounting for nearly four-fifths of the agreements. As long ago as 1945, the coffee break entered into the agreement of the Southwestern Bell Telephone Company with the CIO Communications Workers, and a business agent for an AFL International Association of Machinists, local has stated that 95% of its current (1955) contracts provided for a break.[45]

In another variety of labor-management agreement, county supervisors accepted recommendations submitted to them by their county employees association,[46] which requested confirmation of the long-practiced 15-minute coffee break, the staggering of such off-work periods, and their use in conjunction with staff meetings. "Some of the most important administrative decisions have been reached over a cup of coffee." They provide, also, that coffee gatherings would not be held near the reception desk.

Coffee Break and Injuries

Employees have sustained injuries during rest periods, and an effort was made to learn of the existence of specific claims or cases which have been brought before industrial accident boards or commissions. Inquiry was made of the states and territories, and of the Canadian provinces. The replies were either the opinions of the administrators or, in some instances, the actual court decisions.

Replies were received from all of the states with the exception of Delaware, Minnesota, and North Dakota, and from all the territories and Canadian provinces. Coffee break period injuries were considered compensable in all the jurisdictions responding where opinions were offered. No opinion was given in the replies from 13 agencies.

Actual cases were cited by 13 commissions or boards, and 19 declared that there were no cases on record. A perusal of certain abstracted legal material revealed the existence of many comparable cases brought before workmen's compensation adjudicating bodies, in many states. The reasoning in some of these varies, but rests on such premises as these: (1) rest periods are considered incidental to employment and do not establish termination therof; (2) the worker need not necessarily be engaged in the actual performance of work at time of injury, for it is sufficient for compensation if he is on his employer's premises occupying himself consistently with his contract of hire in some manner pertaining to or incidental to his employment; (3) the word "employment" in one state does not refer to actual manual or physical labor alone, but to the whole period of time or sphere of activities, regardless of whether employee actually is doing the thing he was employed to do; and (4) when an employee is more efficient as a result of taking a rest period, and the period is given with that in mind, any injury sustained at that time is considered compensable for he is furthering his employer's business. The operating precedent, apart from the needed conditions of "arising out of and in the course of employment," seems to be, in essence, that when the worker is injured, that he be occupying himself consistently with his contract of hire in some manner pertaining to or incidental to his employment. Thus, any usual or reasonable activity comprising one's behavior during the coffee break period is interpreted as being incidental to the conditions or circumstances of employment. In this manner, the respite from work is deemed no different from time engaged in productive activity, and all injuries sustained are compensated.

Larson[48] has elaborated on the applicability of the personal comfort doctrine in his discussion of activity in relation to work connection. He states that, "Employees who, within the time and space limits of their employment, engage in acts which minister to personal comfort do not thereby leave the course of employment, unless the extent of departure is so great that an intent to abandon the job temporarily may be inferred, or unless, in some jurisdiction, the method chosen is so unusual and unreasonable that the conduct cannot be considered an incident to the employment." Pointed out further[49] are the four situations in which the course of employment goes beyond the employee's fixed

hours of work — "the time spent going and coming on the premises; an interval before working hours, while waiting to begin or making preparations and a similar interval after hours; regular unpaid rest periods taken on the premises; and, unpaid lunch hours on the premises. These, apparently, have been considered as work situations in workmen's compensation ruling.

In the main, the interpretation of the workmen's compensation acts has been liberal, and only when an undertaken activity is entirely remote to the contract of hire is a claim disallowed or a decision reversed on appeal. The injuries have coursed from minor traumata to murder and death, and each year since World War II has produced its crop of claims. There appears to be no imminent deviation from the trend of favorable rulings and the granting of awards to the claimants. It might be of interest to add the total monetary value of these awards to the fringe benefits currently occurring to workers in a plant, to determine how substantial would be the increment to today's fringe benefits (non-wage payments) of 50¢ per hour.

Problems in Control

The creation and perpetuation of these non-work periods have not been all skittles and coffee, for the frequency has been increased by certain employees, the duration lengthened by others and the privilege abused so that not entirely in a vein of humor did a wag write a brief bit, as noted previously, pleading that a "work break" be inserted somewhere into the day's activities while one is physically on the job.

Control takes the form of regulated time away from work rather than elimination of the coffee break as an office or shop custom. Infrequently, however, the habit must be altered and, as an example, with the 1957-58 recession, American Brake Shoe Company with 10,000 employees in 54 installations discontinued its distribution of two free cups of coffee daily.[47] The anticipated saving was $200,000 a year.

Various means have been devised to serve coffee, to prevent employees departing en masse from the work premises. The customary methods have been (1) serving in company cafeterias, (2) use of mobile canteens, (3) provision of vending machines, (4) introduction of stationary canteens or serving areas and (5) combinations of these, such as cafeterias and mobile canteens and serving areas, etc. Many industries provide a "coffee room" where employees may prepare their own beverage, and frequently this doubles as a lunch room where bag lunches may be eaten, and hot drinks mixed if desired. Some organizations tolerate the hot plate in a small work area, and one can find a variety of settings from an immaculate kitchenette adjacent to board rooms to the begrimed chipped enamel coffee pot in a steel plant, to the gleaming automatic electric coffee maker in an office. The provision of local facilities will keep employees on the premises, and in the main, will offer more sanitary facilities than may be found in many of the small eating establishments located in industrial areas.

Frequently, some companies will require that all coffee break departures be staggered so that some work can continue and normal operation and communication systems be covered. It is believed by some employers that a total brief shutdown is more easily controlled, so that a bell signal system will be used to indicate the beginning and termination of these midshift rest periods. With these, all work ceases simultaneously, the employees leave their worksites for canteens, and return to their activity in a body. An interesting commentary on this system appeared as a news note under the heading "Score One for the Coffee Break."[50] The item read: "Thirty-eight persons escaped possible injury when an explosion and fire swept through a group of buildings in downtown Los Angeles. They were saved by that popular institution, the coffee break. All the employees, the UP reports, were out for refreshments when the explosion took place in a paint shop around the corner from the foundry at an aircraft parts plant."

Still in common practice, though, is the custom of "sending someone out" for coffee and certain foods. Frequently this is a custodian, or more often members of a clerical force will take turns, using a standard "in" or "out" desk tray to transport the coffee and its accessories. This will be drunk at deskside and will match the habit of many time-conserving executives who do not leave their offices for a midmorning break, but will take coffee while continuing work.

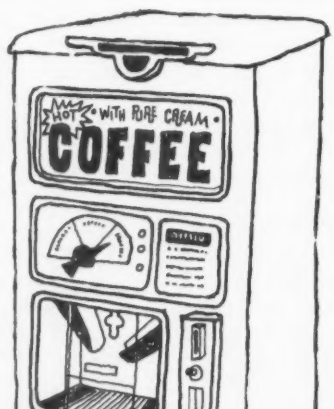
Odd variations of the coffee break are seen occasionally where customers are lured into an establishment through the provision of free coffee. In a bank in New Jersey, a coffee-vending machine was installed which bore a sign reading, "This is a typical coffee vending machine. There are over 60,000 in use throughout the United States. Tenco, Inc., one of our customers, located here in Linden, manufactures the coffee for these machines. Won't you try a cup with our compliments?" In the three weeks of experience, the machine dispensed 300 to 400 cups daily. An outpost of a chamber of commerce offering travel information to tourists entering a medium-sized Southern city, has available coffee for its callers at no charge, and a card on the equipment indicates that the coffee is produced locally by a certain wholesaler.

With the variety of control systems tried by industry, none has been perfect in keeping the time lost to a minimum and, of course, the duration of the individual's coffee break will be in inverse proportion to his work motivation, and regulatory mechanisms will function more effectively in a large factory situation with hourly paid employees than in an office staffed primarily by clerks on a weekly pay basis. Further, admonitions regarding abuse of the rest period will be followed by more adherence to the rules, but this behavior will be cyclic, and tightening of the observation of the regulation will give way to laxity in phasic sequence.

The Boom in the Industries of Coffee Break Supply

Not only has the World War II custom given rise to an increased consumption of coffee, but it has led to a rise in the manufacturing of equipment needed to answer the demands. Currently there are different companies making automatic coin operated dispensing machines offering coffee, or coffee and other hot beverages. The most recent addition to the market has been the device which provides the customer with freshly brewed coffee, whereas most of the vending machines use an instant mix or a quick-frozen coffee concentrate.

Mobile units equipped to enter a plant as an integrated whole or as a trailer package have been designed and built. Restaurant chains such as Schrafft's on the East Coast have expanded to offer companies mobile coffee service, and are equipped to deliver 20 million cups of coffee and 13 million pastries a year to offices in Manhattan, Philadelphia, Boston and Newark. For those who still believe that the machine-mixed beverage resembles coffee only in its color and temperature, there has been produced a $2,000 dispenser which stores fresh coffee at 185° F. in heated Thermos jugs.[53]



Water coolers have become standard in most new construction for industry, large stores, hospitals and schools, but only within the few years just passed have the dual purpose water fountains appeared which offer both hot and refrigerated water. Some are built to utilize a three or five gallon bottle of water* which obviates supplying a water line to the equipment. Heating up to 190° F. is possible, so that instant soluble coffee can be dissolved. Available also is the pressure type which provides hot or cold water from a piped-in water source, and an accessory hot water dispenser for hook-up to any standard cooler.** Cabinets are available for the storage of beverage components and supplies. To accompany these hot water dispensers, there has appeared the self-service packet, which contains a soluble coffee in measured quantity, a cream powder, and sugar in a three-compartment foil envelope along with a stir stick. A paper hot drink cup is delivered simultaneously. To hold these packets is a new vending machine placed in a position adjacent to the hot water supply.

Ordinary paper cups were not adequate to care for hot beverages, so that special plastic coated cups were designed, obviating the transfer of the taste of paper to the liquid, and eliminating unusual odors. Introduced in January, 1951, was an addition to the variety of liquid coffee preparations — a carbonated coffee beverage.[55] The industrial expansion continues and, unquestionably, there will be new devices and new food packagings created, all as an outgrowth of a war-born industrial-social change.

Sanitation

Problems in sanitary maintenance have accompanied this swelling phenomenon, and the area surrounding the vending machines, snack-bar or the office coffee supply shelf bar had not only a litter of used napkins, food remnants, paper cups, paper or wood spoons, food wrappers, filled ashtrays and trash receptacles circled by near-misses, but the problem of cracked crockery, inadequately washed cups, cups drying on paper towels, drainboards or, in fact, any surface, and the contamination or spoilage of cream and sugar. Custodial care is required to maintain these eating or drinking areas, for, somehow, employees exercise little effort toward their maintenance.

The automatic vending machine obviates this soilage in great part, but inherent in the construction of the machine itself is the problem of sanitation. Fortunately, a Sanitation Ordinance and Code has been initiated by the U. S. Public Health Service,[56] which consists of a set of recommendations developed by the Service in cooperation with health agencies and the National Automatic Merchandising Association. The code is followed

*Examples of this equipment are the Westinghouse Hot and Cold bottle water cooler, the Oasis Hot 'n Cold, and the Kelvinator Hot 'n Cold.

**The Sunroc Cooler-Hot exemplifies this variety.

in the design and construction of vending machines, in the handling and storage of food products sold in vending machines, and in the sanitizing and operating of vending machines. A joint committee,[57] the Automatic Merchandising Health and Industry Council, composed of representatives of public health agencies, the Public Health Service, the three branches of the Armed Forces and the vending industry, advises and directs programs of research and education, of methods of machine examination and evaluation and of the development of special standards.

Of particular concern in construction and operation of the vending machine are such features as protection against insects, sealing of the product area from the compressor area, corrosion resistance, easy cleaning, temperature control, water service connections and liquid waste disposal. New machines are being built to comply with the recommendations of the Code. There must be, obviously, adequate sanitization of the equipment after it is installed for use, to insure cleanliness of food contact surfaces and internal parts.

Striking the Psyche

Motivational research reached public understanding with the wide reading of Vance Packard's bestseller, *The Hidden Persuaders.** Because of some slipping in per capita consumption of coffee from the 1946-1949 peak, a research project was conducted by the Institute for Motivational Research, Inc., under Dr. Ernest Dichter, at the request of the Pan-American Coffee Bureau.[58]

It is of interest to learn of the depth and direction of the recommendations submitted to bring about the "rediscovery of coffee." The industry was chided for being "lulled into complacency" by the universal acceptance of coffee and the fact that most people drink coffee. To help people "rediscover" this beverage, these broad areas of promotional activity were advised:

"1. Feature coffee as a beverage to heighten the pleasures of life; give it the variety required by modern living.

2. Dramatize coffee's role of helping people to meet with everyday problems.

3. Promote the 'coffee break' in all of its implications.

4. Remove consumer doubts about coffee drinking.

5. Change from a dictatorial to an invitational approach in recommending coffee brewing methods.

6. Approach the teen-age market with care and consideration."

*New York: David McKay Company, 1957.

Throughout the study are seen with frequency some of the shibboleths of the ad-men, such as, "modern living," "gracious living," "live more pleasurably and comfortably," "more refined . . . products," "the level of the exciting," "luxury of coffee," and the "trend to individuality." Playing strongly on the emotional connotations, the industry is asked to "expand people's mental picture of coffee," to "relate coffee to different moods and times of day," to "stress the sensory pleasures of coffee" and to "feature coffee drinking as a satisfying emotional experience." And in keeping with today's purveyors of digest-sized and stadium-filling faith, coffee is to be promoted to these themes: "Dramatize coffee's help in achieving independence and self-control," and "Associate it with well-known people who cope with life." Aiming the program specifically at the coffee break, the researchers suggest these approaches, undaunted by the lack of scientific documentation. "Present the 'Coffee-break' as a legitimate time out from discipline — a reward for good work," "Explain that the 'Coffee-break' increases efficiency, production, and is an aid to employee morale," and lastly, "Feature the 'Coffee-break' as a factor in employee relations."

So goes the advice of the probers to the hucksters — to identify coffee closely with the sensuous pleasures of living, and by creating an artificial halo effect about its consumption, to furnish the user a newer kind of status, replete in the skills of meeting life's problems. Obviously, the recommendations are based on the feelings of the respondents and how they react to a variety of presentations. Along with the new colorful one- and two-page spreads in our national magazines promulgating the rewards of trying coffee offered in a range of attractive beverage recipes, comes the insidious approach to industry's managers, implying — without proof — that production will soar, morale will go skyward, and all will be right with the workaday world. This, almost to the point of creating feelings of guilt if the coffee break is ever tampered with as a right — feelings both in employers and in legislators. Further, it points up to the individual worker that he should take the break, needed or not. The "forgotten man" was touched on recently in *Fortune*,[59] when it was shown that the American worker who does not like coffee is in a quandary. "What is he supposed to do during the coffee break — go on working like a dope?" And the writer summarizes with, "But the break still seems hard on poor old Joe, back there at the turret lathe, boring away — the man who doesn't like coffee."

Recognizing the existence of these negative factors, but a few months ago the Manager of the Pan American Coffee Bureau distributed a

leaflet* to coffee dealers, accompanied by a letter[60] which read, in part: "There are, however, many millions of workers who do not enjoy the benefits of the coffee-break and there are others who are threatened from time to time with the loss of it. In today's business climate, the coffee-break, with the increased consumption and sales it affords the industry, cannot be taken for granted. It would be shortsighted to assume that it is a 'sacred' custom that could not be done away with. We in the coffee industry still have a job to do in promoting the coffee-break for more people and in defending its benefits for those who have it." Thus, joining the lengthy line of purchase pressures comes coffee to persuade Americans that through the use of this beverage, there will accrue a multiplicity of benefits from peaceful, adjusted acceptance of the stresses of the world to graciousness in living. And as Americans rally 'round the flag, they will believe it.

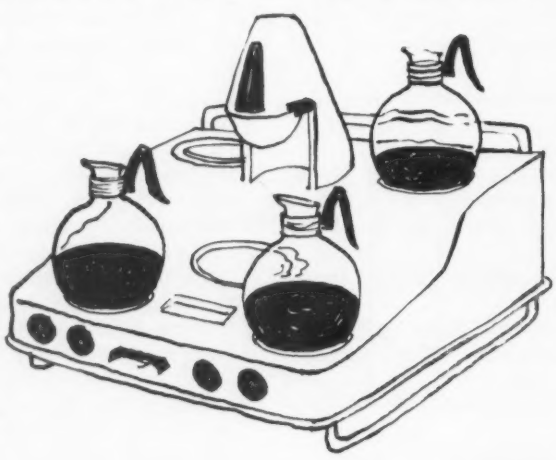
Occupation Health Asset?

The institution or perpetuation of the coffee break system in a work situation represents the introduction of not a single new social process but a constellation of activities and interrelationships. There are the cessation of work, the movement from the accustomed site of work, the possible stopping enroute at a restroom, the entry into the food or beverage service area, the procurement of a hot drink, the entry into a temporary relationship with one or more fellow workers, known or strange, the consumption of the beverage and, possibly, food, the exchange of conversational material, the termination of the relationship, the clearing and storage of used containers and appertinances, the departure from the area, the visit or revisit to the restroom, the re-entry into the work locus, the momentary exchange of news items with fellow workers and the resumption of the assigned task. Which of these many activities is responsible for the alleged benefits accruing to the coffee break participant?

Is the leaving of the work situation most productive of good? Or is it the drinking of hot coffee? Or perhaps the re-establishment of interpersonal relations with one's fellows during the break period? Because of the publicity given the drinking of coffee, and as this temporary withdrawal from work derives its name from the beverage, it seems wise to examine this factor first.

Coffee, exemplary of the xanthine beverages, contains in one average cup between 100 and 150 mgm of caffeine, a quantity at the lower border of a therapeutic dose[61] and, obviously, the daily ingestion of a strong alkaloid will exert a pharmacologic effect. Caffeine stimulates the cortex, with its primary action being on the sensory and psychic functions according to pharmacologic knowledge. The results of coffee consumption are seen in clearer and more rapid thinking, forestalling of sleep and fatigue, a prolonged intellectual effort, better association of ideas, a sharper appreciation of sensory stimuli, increased motor activity and a diminution of reaction time to stimuli. On questioning, though, the average coffee-drinker disclaims stimulation from the beverage, the influence of the drug being demonstrable only by careful testing. It has not been demonstrated, though, as it has with many stimulants, that there is any depression following the central nervous system stimulation.[62]

Consumers vary in their declared response to the drink, for some claim that their late use of coffee leads to insomnia, while others, in a sense, believe it has soporific effects. Individual sensitivity to caffeine has been known where the ingested drug essentially has toxic properties.** Restlessness and disruption of the sleep pattern can result from excessive habituation, but it is not considered harmful. While increasing performance early in the day, the action does not stem from analgesic properties. The morning fatigue pattern, with its associated aching, probably is caused by a sustained muscle tension, with some reduction in blood flow through muscle tissue.[64] It is believed that in alleviation of this condition, coffee, probably as a stimulant of the central nervous system, moves the user to activity with an increase of muscular blood flow and diminution of muscle tightness (concomitants of



*The Coffee-Break. Why It Helps Efficiency, Morale, Safety. New York, The Bureau, 1958.

**Allergic response to coffee as an occupational phenomenon has been noted in six workers demonstrating vasomotor rhinitis, asthma, or angioneurotic edema.[63] The ingestion of boiled coffee produced no evidence of sensitivity, the allergen apparently being thermolabile.

inactivity), and exerts a "powerful placebo action" through its "deep tradition of psychological significance."

Working with housewife subjects, Schlosberg,[65] at Brown University, compared tea drinkers with nonusers in the performance of mental and physiologic tasks. The first group was administered tea during their rest periods, the other, none. Skin conductance was measured to demonstrate tenseness and any added effort to counteract fatigue. There was improvement noted among those given tea, but it was felt that the response was too immediate to be caused by the caffeine of the tea, which needs additional time for assimilation. Schlosberg felt that the conductance measures served to indicate energy mobilization or level of attention. With each new job, the housewife alerted herself to give more of herself, and as she became accustomed to the work, gradually relaxed. With each successive day of familiarity with the task, the conductance level dropped. It was concluded that there is an optimum of activation (tension) appropriate for the task at hand, and the tea break helped the worker reach this optimum. The interpretation of the action of the tea — it "peps you up if you are fagged out, but relaxes you if you are too keyed up."

Workers at Wisconsin have shown that "heavy roasting elevated markedly the normal niacin content of coffee," and caffeine long has been added to the simpler aspirin-containing analgesic preparations used for relieving headache, the latter action possibly being responsible, in part, for the well-being following the coffee drink during a rest period.

There are benefits obviously from an established toilet habit and washing. But probably of greatest value is the opportunity afforded employees, particularly those in repetitive work, to cease their labor periodically and establish or develop further relationships with their coworkers. Whether welders are on a smoke break in a delineated smoking and drinking area in a huge plant, or typists gather in a lounge around a snack bar, there are values in these groupings. Experiences are exchanged, tensions are loosened by not too hostile a form of raillery, plans are made for joint activities, romances are given nourishment and low-level counselling is executed. Skills are practiced in meeting people — friend and newcomers — and in relating the accomplishments of yesterday's fishing or hunting or plant recreational activity, ego strengths are firmed, prestige is boosted, and new cores of interest are created for the nondoers. As a focal site for ventilation of restrained expression, voicing of group opinions, and general forum for the exchange of beefs and gripes, the coffee break setting serves as a steam head reducer in keeping pressures at a desirable level. Rumors and grapevine products are brought in and verbalized to try them out for size or significance, and group thinking gives impetus to what eventually may become a change in company policy. This is the town meeting brought up to date and dressed in working clothes. It represents a lone form of democracy in the culture of bigness — big industry, big unions, big markets and big government. The individual worker can be leader or follower in his group, and is free to offer his bit to the conversational exchange.

The formation of this different kind of social situation at work allows a coming together of employees, usually not possible while completing assigned tasks. Most jobs entail frequent one-to one relationships, interspersed by rare group meetings which are structured by a one-to-many relationship with a dictatorial kind of leadership and a resentful submissive type of followership. The coffee break is at variance with this, providing, in essence, a leaderless discussion format. In those high schools where coffee and cake breaks have been instituted,[67] the end products have consisted of "time for new associations, school spirit and comradeship for both students and faculty," and "a meeting place for . . . out-of-towners to get acquainted." Significant to the newcomer on a job is the invitation to join the ingroup at coffee. This is of considerable importance to new women employees who, traditionally, must play a passive social role until included in one group or clique, or another. Ice-breaking for the new "hire," this office and plant custom brings this person into the circle quickly and naturally. From this group-inclusion comes bettered morale, and a more positive view of the employer.

The whole subject of benefits, however, needs exploration on a scientific basis, with formulation of adequate hypotheses and sound testing methods and systems of measurements including objective observations. That there is an elevation of morale, or increase of production, or lowering of fatigue, or reduction of accidents, or minimization of turnover, or decrease in absenteeism or drop in scrap, as claimed by many, is in need of validation in genuine work situations and not in artificially created or simulated labor settings. The experiments must be conducted among a broad spectrum of workers engaged in standard competitive industry. Until this is done, the conclusions will be fenestrated by conjecture, guessing, approximation and projection. There is much to be studied before we can convert "I think our coffee breaks are helpful," to "We have statistically significant data proving the worth of our coffee breaks."

Pending such investigation, though, it seems wise to continue the campaign to urge drivers of motor vehicles to pause periodically for a cup of hot coffee. McFarland[68] has placed faith in caffeine's ability to produce slightly faster reaction times to improve alertness and to postpone drowsiness, and advises its use in prolonged driving. The Detroit Greater Safety Council[69] has warned that motorists preparing for extended vacation-holiday trips plan the itinerary to permit frequent coffee breaks, and industrial firms have distributed highway safety posters reading, "For Safety's Sake Stop for a Coffee-Break." Coffee stations, maintained at state expense, have been suggested at scattered points along highways to reduce the automobile accident frequency.[70] The American Medical Association, in its pamphlet "Are you Fit to Drive?"[71] advises, "When making long trips, rest every two hours and drink coffee or cola to stay alert," and a public relations concern entered two coffee company clients into accident-prevention activities.[72] A coffee bar was set up in a local police headquarters in cooperation with the police department and local newspapers. Coverage was given to the goal of "making coffee your one for the road." Highway signs within a 15-mile radius announced "Free Coffee for Tired Drivers at Police Headquarters." Other communities have copied this public service, and the farmer, victim of high accident frequency rates, has been urged by Top[73] of the University of Iowa to take a midmorning break in his 10-hour day in the field with a tractor. Any measure aimed at reducing life-loss through human error in highway or farm operations is worth the joint effort of drivers, industry, law-enforcement agencies, trade groups and medicine.

Summary

With the increased demands for manpower and production during World War II, there appeared the midmorning and midafternoon cessation from work, termed in most work situations, the coffee-break.

The entity of the coffee-break has entered into the conversational currency of advertising, the cartoon, the news item and the news photograph as a recognized activity of worker, housewife and student.

Introduced initially to combat work fatigue, the rest period has provided an interval for food and beverage consumption, which activity through elevation of blood level has been credited for minimizing accidents and injuries, increasing production and counteracting the nutritional deficit displayed by those who omit breakfast.

In four large surveys, involving over 3,000 companies, it was seen that 70% to 90% of the organizations grant time for coffee breaks, in the belief, mostly undocumented, that morale, production and efficiency improved, and that fatigue, absenteeism, accident rate, turnover and waste are lowered.

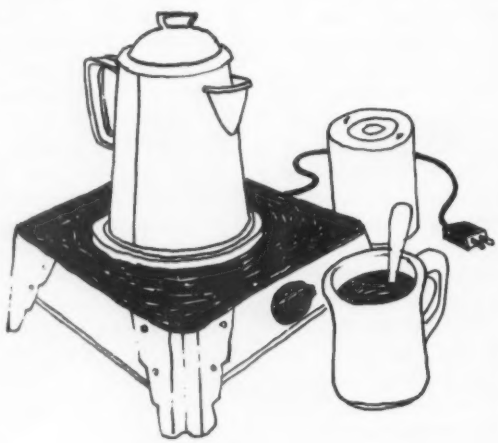
Dimensionally, the coffee break assumes these measurements: 35 million workers utilize rest periods as coffee breaks; 8 billion cups of coffee are consumed annually during coffee breaks (7.4% of all coffee drunk in the United States; 15% of all coffee consumed by the homemaker is drunk at midmorning and midafternoon; and rest periods represent a fringe benefit cost to the employer of 5.5¢ per employee per hour.)

Legislative action regarding rest periods has been taken in the states and territories as follows: (a) Of 64 jurisdictions in the United States and Canada, 15 (23.4%) had specific provisions regarding rest periods; (b) the usual authorization was a twice daily 10 minute work-free period for each four-hour session and (c) in all but three instances, the legislative acts referred specifically to women, or to women and minors.

The question of the recognition of rest periods as legitimate time components of the work day has been tested in the courts, and the concept of the break has entered into collective bargaining agreements.

The causal relationship of injuries incurred by employees on their coffee breaks has demanded opinions of industrial accident boards and commissions. These injuries were considered compensable in 100% of the states, territories, and provinces responding (47) where opinions as to compensability were offered. No opinions were given by 13 respondents.

The basis for allowance of workmen's compensation claims lay in one of these arguments: (a) accident must take place on premises of employer; (b) rest period is considered identical to work period; (c) rest period authorized or



is customary; (d) combination of a. and b.; (e) rest period mutually beneficial to employer and employee; (f) miscellaneous reasons: circumstances of the case, or declaration of compensability without specific reasoning.

Actual cases were cited by 13 commissions or boards, and nearly all were decided on the basis of the personal comfort doctrine, or the interpretation of rest periods as work situations. The decisions have been liberal, and the injuries have coursed from minor traumata to murder and death.

Abuse of the coffee break privilege has faced employers as a problem, and attempts at control have included the serving of coffee on the premises, the staggering of times for the break, and the "sending out" for coffee.

Certain industries have boomed because of the creation and perpetuation of the coffee break. These include the manufacture of dispensing machines, the catering trade specializing in this service to office buildings and plants, the paper cup industry, and coffee importing, roasting, packaging and distributing.

Because of the people and commodity concerned, problems in sanitation have arisen with the litter surrounding snack bars, and the cleaning and sanitation of vending machines. The latter has been met in part by a Sanitation Ordinance and Code, developed jointly by the U. S. Public Health Service and the vending industry.

Motivational research conducted for the coffee industry has led to promotional themes which, in essence, imply that the use of coffee brings about "gracious living," a "satisfying emotional experience," aids in "achieving independence and self-control," and is associated with "well-known people who cope with life." Without scientific proof, the claims are made that production and morale will rise.

Although the pharmacologic effects of caffeine ingestion have been demonstrated in cortical stimulation, an increase of muscular blood flow and the relief of headache, additional rest period advantages include the establishment of regular toilet and washing habits. The greatest benefit is felt to accrue the worker in the form of better interpersonal relations at work, effected by means of the twice daily gathering over a beverage. Opportunities for growth are offered, tensions are relieved, new companionships are born and weakened ego strengths are given new structure.

Conclusions

The coffee break in the American work scene — for employee or housewife — has become a post-war tradition, legitimized by custom and statute.

Rest period injuries have been declared compensable, and in nearly all connotations, this interval has become inseparable from normal work time.

The greatest benefit accruing to the employee is the opportunity for individual growth, in its fullest sense, through bettered and more frequent and relaxed interaction with his work peers, and this could probably ensue with the consumption of any beverage.

The claims that a coffee-break increases production, improves morale, minimizes absenteeism, lowers labor turnover, drops the accident frequency rate, or eliminates fatigue are still in need of validation in genuine work situations, where sound hypotheses should be formulated and tested by objective measurement. These assertions will remain conjectural until controlled studies in competitive industry demonstrate their truth or invalidity.

Acknowledgement

Grateful appreciation is given Bobbie Hurt and Mary Payton for assistance in technical preparation of the manuscript.

The illustrations are by Bill Johnson, Coral Gables, Florida.

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Coffee Break Trends

Coffee break habits are changing, as twice-a-day breaks spread, reports the Pan-American Coffee Bureau. In 1957, outside eating places were visited during coffee break by 14% of factory workers, 26% of office workers and 52% of store workers. Today, those leaving jobs at break time amount to only five percent of factory workers, 20% of office workers and 23% of store workers.

Today, 10 million workers get two breaks daily, compared to six million in 1956. Of all coffee breaks, 60% are taken by workers at their work stations or desks. —*Industrial Relations News,* July 11, 1959.

The Management of Melanomas

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In times past the term melanoma meant only a pigmented lesion and it required a modifying designation as benign or malignant. Such usage is obsolete; today, a melanoma is defined as a highly malignant tumor which usually originates in skin. It is usually pigmented, but not necessarily so.

The evolution of a melanoma is not yet clearly understood. It is thought that the earliest precursor is the lentiginous spot which appears on the skin as a flat macular area of lighter pigmentation. Microscopically, the basal layer of the skin shows pigmentation and the characteristic clear cells are scattered throughout the epidermis. This innocuous lesion may then progress into a junctional nevus. It is not always possible to differentiate between these two clinically, but in general the junctional nevus is more heavily pigmented and more sharply demarcated from the surrounding skin. Microscopically, the basal layer contains tufts of neval cells which project down into the derma. As time passes, these tufts of cells tend to break off from the epidermis and coalesce into sheets of neval cells within the derma. Lesions containing both the junctional and intradermal element are referred to as compound nevi. The final stage in the evolution is the intradermal nevus, where the juctional element has completely disappeared. The intradermal nevus is elevated above the skin surface. Since hair follicles are situated in the derma, a hairy nevus always contains an intradermal component.

Demonstrable nevi are uncommon in infants or young children. It is probable that the cells are present, but undetectable because of the lack of pigmentation. Those lesions occurring in early life almost invariably show junctional changes and Allen feels that the approximate age of the patient can be estimated from the proportion of the junctional component. The formation of the intradermal element usually begins in the center of the junctional nevus and spreads toward the periphery. This change usually begins at puberty or in early adult life. The majority of nevi in old people are purely intradermal.

Most melanomas develop from the pre-existing nevi, and they originate from the junctional component, either in a junctional or a compound nevus.

A melanoma is a melanoma for a long time before it looks like a melanoma. It masquerades as a nevus. The microscopic demonstration of melanoma in an occasional case of a benign appearing lesion, and the poor prognosis in cases treated soon after the onset of change supports the concept that the treatment of early melanoma implies the removal of nevi with a junctional component. It is physically impossible to remove all the nevi which one encounters, but those on the palms, the soles and the genitalia, as well as those in areas of chronic irritation, are thought to be more likely to undergo malignant degeneration. Their removal as a routine measure would seem to be a safe and wise procedure.

The earliest clinical manifestation of malignant degeneration is an itching or stinging. This is usually intermittent, mild and may not be present at all. Sudden growth, ulceration and bleeding are usually late signs and their absence is no reason for complacency. A change in pigmentation does not necessarily indicate malignant degeneration, but it is an indication for immediate removal of the lesion.

Nevi should always be excised and should not be treated by cautery, sclerosing solution, CO_2 or irradiation. Microscopic examination is more accurate than clinical impression in detecting malignant change. Furthermore, the incomplete irradication which often results from these other methods of treatment delays the initiation of proper treatment of a melanoma and favors dissemination of the malignant cells.

In those cases where the gross impression is in doubt, the lesion should be treated as a benign one, if the lesion is small. If the lesion is large, a biopsy should be taken from the center. Frozen sections on these lesions are unreliable, but rapid permanent sections are desirable. If the tumor is malignant, proper treat-

From American Association of Railway Surgeons, 71st Annual Meeting, April 17, 1959, Drake Hotel, Chicago, Illinois.

ment can then be given with the least delay.

A melanoma should be treated by wide local excision. There should be a two to three cm margin of normal tissue on all sides, because nonpigmented lateral spread is common and clinically undetectable. In most locations, a skin graft will be necessary to cover the resultant defect after adequate surgical removal. The specimen should include the fascia upon which the regional lymphatics tend to run.

If it is practical, the regional lymph nodes should be removed en bloc with the primary tumor. If the melanoma is distant from the node bearing area and resection in continuity is not practical, the indications for "prophylactic" node dissection are less clear. A "prophylactic" dissection is defined as one in which the lymph nodes are clinically uninvolved with tumor. The uncertainty regarding the proper course results from several factors. If the primary tumor is excised and a disconnected regional node dissection performed, metastatic implants along the intervening lymphatics will develop in many cases; this is sometimes referred to as satellitosis. Attempts to overcome this problem by delaying the node dissection for several weeks to permit tumor emboli to arrive at the lymph nodes have not been successful; satellitosis sometimes develops many months after the node dissection. The "corridor operation" was devised to eliminate this problem by removing a wide strip of skin and soft tissue along the course of the major lymphatic vessels from the site of the primary tumor to the node bearing area. This operation failed to accomplish its purpose because tumor emboli travel along secondary lymphatic pathways as well as the principal route. Futhermore, those cases destined to develop satellitosis often have seeding of tumor in distant areas before treatment is initiated. For these reasons this procedure has been abandoned.

A third factor to be considered is the operative morbidity associated with the node dissection. Radical neck dissection usually has no serious sequela. Figures are not generally available for axillary dissections performed for melanoma. However, following axillary dissection for carcinoma of the breast, the incidence of lymphedema of the arm is high — over 80% when measured by water displacement and it is symptomatic in over 20% of the cases. In my experience, some edema of the leg is present in practically every case following a properly performed inguinal node dissection. This morbidity is distressing to both patient and surgeon, especially when the nodes do not contain tumor.

The case for prophylactic node dissection would be stronger if the evidence of improved survival rate as a result were a little more convincing. Unfortunately, controlled series of cases are almost completely lacking, and opinions have been formed largely from clinical impressions. Booher and Pack feel that the incidence of satellitosis is low. Johnson, however, has published a small series of cases from the Ellis Fischel Hospital, which suggests otherwise.

My own policy is to do a regional node dissection in any case where it can easily be done as an en bloc procedure. If the nodes are clinically positive, and the primary tumor is distant, I tend to do a regional node dissection as a disconnected procedure at the same time. If satellitosis develops, a disarticulation of the extremity is the only surgical procedure that would be of any value. I have never performed the operation for melanoma because the apprehension about distant metastases has been a persuading deterrent.

The recent introduction of isolation-perfusion techniques with high doses of chemotherapy compounds may solve this dilemma of what to do with the no man's land between the primary tumor and its distant lymph node area. The area to be treated is placed in vascular isolation by temporary interruption of all possible arteries and veins serving the area. The treatment field is then exposed to extremely high doses of tumoricidal drugs by perfusion through the vessels using a pump oxygenator similar to those used in cardiovascular surgery. The treatment is limited only by the amount of drug that escapes into the general circulation. The initial results of this treatment have been impressive and as better drugs are developed, the benefits should improve.

Mention should be made of the use of x-ray therapy. In general, melanoma is a radioresistant tumor and the treatment of choice is surgical excision. However, in some cases small lesions can be sterilized by high doses of irradiation. In those cases where surgery is refused, or is not practical, x-ray therapy should be tried.

The results of treatment of melanoma depend largely upon the age of the patient, the location of the primary tumor, the nature of the melanoma and its biological age. Melanomas occurring in children rarely metastasize before puberty and wide local excision is almost always successful. However, puberty is a nebulous term, and endocrine excretion studies suggest that chemical puberty antedates clinical puberty by several years in some cases. Most reported cases of prepubertal melanoma have been in children around 10 years of age or older and one suspects that chemically speaking, these people were adults. I prefer to remove worrisome nevi as soon as the child will cooperate under local anesthesia and this is usually no later than age five or six.

The anatomical location of the primary tumor

has a marked influence on prognosis. Lesions of the eye are favorable; those of mucous membrane unfavorable. Tumors arising about the head and neck are thought by some to have a better prognosis than those of the skin elsewhere. It may be that earlier recognition explains this difference.

Melanomas are not all the same as far as clinical behavior is concerned. Allen and Spitz have described the juvenile melanoma which usually occurs in children but may occur in adults. This variant is a much more benign lesion than the usual melanoma and treatment is usually successful. In addition, there are certain melanomas which tend to grow more slowly and spread less widely. These lesions tend to remain superficial and the pathologist can sometimes detect them microscopically.

The term biological age of a tumor refers to its maturity and independence as a malignant tumor. It has long been known that some tumors grow slowly and others rapidly; that some metastasize while still undetectable clinically, while others remain localized until they are quite large; that tumor nodules may lay dormant for years and then suddenly grow wildly. These variations probably result from changes in host resistance, endocrine imbalance and other poorly understood mechanisms, and they explain why the chronological age of a tumor is not the best prognostic indicator. However, tumors of the same biological age have approximately parallel courses. Cases in which there are visceral implants are incurable and usually die within a few months. Cases in which only the regional nodes are involved have a five year survival rate of about 10% to 15%. The best results of treatment, of course, are seen in cases where the tumor, clinically, is still confined to the local area, and about 40% survive five years. While these figures leave something to be desired, they do compare favorably with those for carcinomas of the lung, esophagus and stomach. For some unexplainable reason, however, melanoma seems to be the gloomy tumor. In a small number of cases where a clinical nevus proved to be a microscopic melanoma, the prognosis so far has been very good. The local excision of lesions resembling nevi would seem to be the preferred treatment — if it were possible.

Farm First-Aid

People living in rural areas should master the "Four B's" of farm injuries, according to a surgeon at the University of Michigan Medical Center. C. Thomas Flotte, M.D., said farmers and other persons who live some distance from professional medical care can save lives if they handle emergencies properly. Treatment for most farm casualties involves the "Four B's" of breathing, bleeding, breaks and burns, Flotte reported. He offered a four-point program for the emergency control of such accidents:

(1) Bleeding: The best method for stopping the flow of blood is to apply pressure directly onto the wound. Simply put a piece of material on the wound and push. He claimed that pressure alone will stop bleeding in more than 90% of all accidents. Tourniquets should be used sparingly, because they often result in the ultimate sacrifice of the limb.

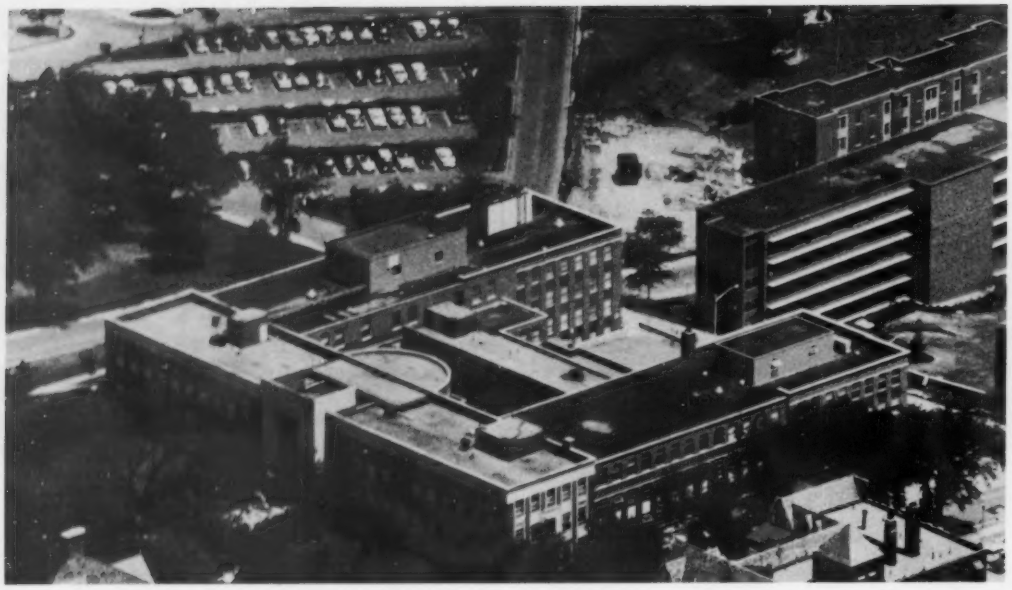
(2) Breathing: Corrective measures must be taken immediately because an individual will rarely live more than five minutes without air. Any obstructions — foreign objects or false teeth — clogging the windpipe must be removed at once. Another thing that is sometimes forgotten is that the tongue will slip back into the throat. Grab it forcibly and pull it forward.

If artificial respiration is necessary, the best and simplest method is mouth-to-mouth respiration. Clamp the victim's nostrils to prevent the escape of air, then place your mouth directly over his. Force a lungful of air into him. He will exhale it as soon as you break the mouth-to-mouth contact because of the elasticity of his lungs.

(3) Breaks: The old saying of "splint them where they lie" is just as true now as it was 100 years ago. Emergency splinting simply immobilizes the limb. A professional splinting job will be done by the doctor. You can immobilize the limb with any material readily available, including a rolled up newspaper.

(4) Burns: Any burn that covers more than 10% of the body surface must be considered serious. The only thing you should put on such a burn is a clean or sterile cloth. Only the doctor should decide whether to apply ointments, lotions or anything else to a major burn. Emergency treatment for burns should be designed exclusively to prevent further contamination. The human skin is an excellent defense against germs, but once the skin is burned the threat of infection is very great.

In all forms of farm injuries, there is serious danger of shock. It is highly important to take steps to prevent or delay the onset of shock. Precautions include: elevating the legs above the head; giving warm fluids if there is no abdominal injury; and personal reassurance, because a certain part of shock is psychogenic in origin.



School of Public Health with Its New Wings — Aerial View.

Expanding Facilities for

The autumn of 1959 will mark the formal dedication of two new wings added to the original structure that houses the School of Public Health of the University of Michigan at Ann Arbor. Funds for this construction approximating two million dollars chiefly derived from grants made by the United States Public Health Service and the Kellogg Foundation. Under the conditions of the grants made, these additions are to house appropriate research activities. Already the construction is complete; the buildings are occupied and work is in progress.

The Department of Industrial Health with Dr. Seward E. Miller as Professor and Chairman of the department and Director of the Institute of Industrial Health, was allotted two floors in the North Wing. In addition, in the rearrangement of the space within the older Public Health School Building, the Department of Industrial Health gained adequate housing for student training laboratories, service to industry facilities and teaching staff offices. Apart from activities located in the School of Public Health, the Institute of Industrial Health will continue clinical and research pursuits operated in the nearby University Hospital and in the Kresge Medical Research Building. These enterprises are in conjunction with various departments of the Medical School such as otology.

In the early days of university participation in occupational health laboratory enterprises, sometimes the total equipment might have been stored in a single suitcase and might have consisted of some form of photometer for light measurement, a konimeter as the simplest form of dust counter, a sling psychrometer for the measurement of humidity and some variety of hand operated carbon monoxide detector. Present day requirements demand far more and far better instrumentation. Single pieces of apparatus such as the emission spectograph may represent an expenditure of over $30,000 and numerous other single items may cost from $3,000 to $25,000. On a long range basis no group of research laboratories ever is equipped in adequate manner. Demands for new and different investigations require new and different technical equipment. This state of equipment deficit is usual and anticipatable. While the new research and training laboratories are sufficiently equipped for projects now in hand and underway, it is certain that these facilities will need augmentation through further scientific equipment.

Already the initial objective of this presenta-

Animal Exposure Chambers for Toxicological Studies.

Occupational Health

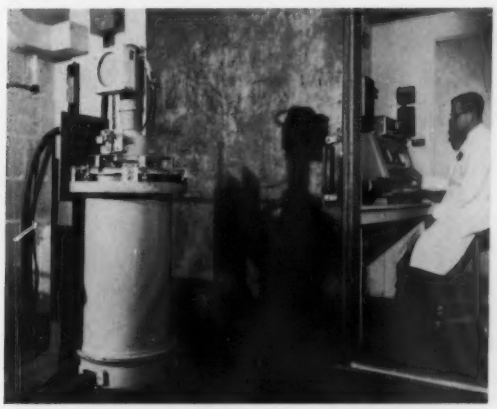
University of Michigan

tion has been achieved through announcement and partial description of new, enlarged, well appointed facilities in occupational health at the University of Michigan. Terminated at that point, it could appear that all this physical advancement might provide a sterility on the order of a museum. More may be in order as "to what ends is all this newness?"

In any university, priority is directed to student instruction. There may with propriety be Institutes of Research but there are no "Universities of Research." At Michigan the department under consideration is committed to the training of physicians of proficiency in occupational medicine and to the training of others to proficiency in industrial hygiene and industrial toxicology. The Institute of Industrial Health, not an academic agency, enjoys a unique training situation. As the administrative unit this institute is identified with an outstanding school of public health which becomes the training center for candidates either in industrial medicine or industrial hygiene, in all the fundamental courses in preventive medicine including occupational health. In addition, the institute headquarters offices are located in the nearby university hospital and the medical school which afford almost unlimited clinical material requisite to clinical training in occupational medicine. To a lesser degree there are identifications with the engineering school of the University with its ramifications of opportunities for industrial hygiene engineers.

The range of training requirements for industrial physicians is broader than for any other specialty in medicine. Many of these exactions are remote to customary medicine and are concerned with industry itself and with the social sciences. While this extraordinary lot of necessary training subjects has been recorded in numerous publications, once again there is war-

Emission Spectograph for Analysis of Trace Quantities of Elements in Air Pollution Studies.



High Capacity X-radiation Source for Research Applications.

rant for the presentation of some from WHO which indicates in the following paragraphs the range of knowledge expected of the medical specialist in occupational health.

"Principles of occupational medicine: historical background; scope and aims; general resources for occupational medicine, public health and medical care; structure and function of industry; industrial and labor policies and relations."

"Industrial physiology: muscular and mental work; energy expenditure; fatigue, monotony, rhythm of work, human engineering; nutritional problems."

"Industrial hygiene: environmental hygiene; hygiene of premises — temperature and humidity, ventilation, lighting, noise; air pollution and harmful types of exposure — gases, vapors, fumes, dusts and their control; maximum allowable concentrations; personal hygiene and personal protective equipment; sanitary facilities."

"Occupational pathology and toxicology: general principles of industrial toxicology; diseases due to chemical agents, physical agents, dusts, biological agents; occupational cancers; occupational skin diseases; occupational allergies."

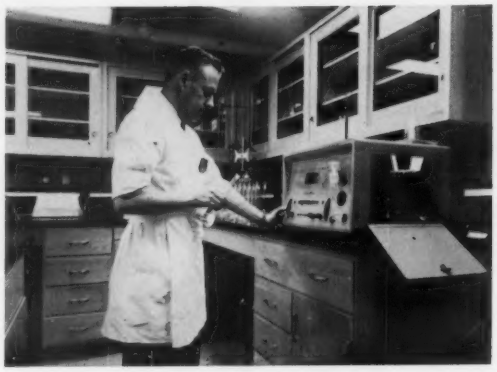
"Special medical problems: specific pathology by trade or branch of industry; relationship between employment and nonoccupational disease; methods for assessment of disability; medical aspects of vocational rehabilitation; psychoneurosis related to work or injury."

"Accidents at work: causes of accidents; principles of accident prevention; rehabilitation of the injured worker."

"Occupational psychology: psychological appraisal, and assessment of aptitudes; mental health and human relations."

"Preventive medicine: pre-employment and periodic medical examinations; health counseling; vaccinations and immunizations; the care of special working groups (young workers, old workers, women and handicapped workers); leisure, sports, addictions (alcohol, tobacco, etc.); education and propaganda."

Proportional Counting Apparatus for Radioisotope Measurement.



Flame Photometry Apparatus Used in Analyses.

"Industrial technology: work organization; industrial processes; job analysis."

"Medicolegal problems, social security: labor legislation; social insurance; workmen's compensation; reporting and notification; medical ethics; liaison with other physicians and with health organizations."

"Organization and administration: organization of occupational health services in industry; administrative and economic problems; medical records and reports."

"Statistical methods: the application of statistical appraisal to occupational health."

The total facilities of the School of Public Health and the Institute of Industrial Health are now such as to meet any and all of these indicated requirements and likewise to meet the academic requirements leading to certification by the American Board of Preventive Medicine in its occupational medicine section. The attainment of capacity in this diversity of topics necessitates an education program over three years, with two at the academic level in residence at the University and the third year devoted to in-plant experience in an industrial medical department formally accredited for that purpose.

The over-all programs of this Institute together with the new and old physical facilities are of such superiority that by official action of the American Medical Association Council on Medical Education and Hospitals, this training center has been designated as one of the few in the country qualified to train physician candidates toward specialty certification by the American Board of Preventive Medicine, in Occupational Medicine.

Active Immunization against Tetanus

• MAYNARD C. KISER, M.D.
Medical Director
Aeroproducts Operations
Allison Division
General Motors Corporation
Dayton, Ohio

During the early 1950's, the employees in our plant were experiencing an increasing number of reactions to tetanus antitoxin. These reactions varied from mild to severe; some were severe enough to make me wonder if it would not be wise to eliminate all such reactions by offering active immunization against tetanus to all of the personnel in our plant.

The program was started in February, 1956. A few months ago I was asked by the central office medical staff in Detroit to explain how our program was initiated, how the procedure was set up, our public relations approach and also some of the results we have had to date.

Many questions arose and one which naturally had to be considered was cost. Since I had no past experience to rely upon, only an estimate could be offered. The toxoid would cost 28¢ per injection. During our first three years, the toxoid alone has cost us about $1,250. Management gave us permission to initiate the program, and knowing from my own experience how private practitioners feel about such matters, I felt that the next move should be to discuss a program with the medical society officers in the counties where most of our employees lived.

Only two counties really were involved, since 90% to 95% of our employees live in Montgomery and Miami Counties. Both of the county societies were approached and the program outlined to them. We were given immediate approval to go ahead as we had proposed. The reaction of one society was so favorable that there was quite a discussion about it and several of the other doctors proposed to set up similar programs in their plants in the areas in which they served.

The next step was to decide how to start the program. In our plant we do routine recheck physicals every four years on all employees. It was decided that the toxoid would be offered to all new employees as they were hired and to each old employee as they came up for their recheck physical. I realize that it would take four years to immunize the entire plant population, but I was afraid of what might happen to our medical department work load if we were to use faster methods.

The employees were divided into two groups; those who had not previously been immunized with toxoid and those who had previous immunizations with toxoid. The first group was to receive three monthly injections of the toxoid. The second group was to receive a booster if it had been over five years since their original immunization or last booster injection.

This raised the question, how long a time can elapse after an individual has been actively immunized until the titer of antibodies fails to protect him from tetanus? The answer has not been determined, but according to the latest reports, protection lasts for at least 10 years and probably much longer. What happens to an actively immunized person when a booster dose is given? If the titer of antibodies is taken some five years after the person is immunized, if he receives a .5 cc booster shot of tetanus toxoid on the same day and if he has his blood tested seven days after the booster — one will find that the patient's titer of antibodies has increased tremendously.

The material that we used to immunize with was tetanus toxoid fluid, manufactured by Lilly. The reason for using this preparation is that practically all of the inert proteins are removed from this product, thereby reducing the incidence and severity of any side reactions. As previously stated, unimmunized people were given three .5 cc doses subcutaneously at monthly intervals, while the individuals who only needed boosters were given a single .5 cc dose.

If an immunized employee now comes to the medical department with an injury, and it has

been over a month since his last immunization, he is given a booster injection.

Since the onset of our program three years ago, we have given 4,498 shots of tetanus toxoid which were divided as follows: 1,351 boosters and 1,049 new immunizations that received three injections.

The following tables will demonstrate what our experience has been.

TABLE I.

February 1, 1956 Employees	March 1, 1959 .5 cc toxoid
1,351 booster	1,351
1,049 new immunizations (3 doses)	3,147
2,390	4,498

Our present plant population is now 1,585 employees and is broken down into the following categories:

TABLE II.

Present Census	1,585
Newly Immunized	450
Booster Doses	578
Previously Immunized	48
Refused Immunization	58
	1,134
Will be offered immunization in 1959	451
	1,585

You will note that 58 refused immunization. This means that approximately 5% of those employees approached to date do not have active immunization.

You might be interested in knowing why some of the employees refused immunization.

TABLE III.
REFUSALS

A. Wish to consult family M.D.
-especially if taking medication.
B. Wished to think it over.
-most of these later consented.
C. Veterans
-had suffered reaction from innoculations while in the service.
D. Other Employees
-refused who had suffered previous reactions from other innoculations.
-employee stated that he healed rapidly and did not need shots.

TABLE IV.
REACTIONS

		Number of Employees	Duration
Local	Inflammation, induration and tenderness	8	24 hours
General	Fever, Malaise	1	48 hours

Of 4,498 innoculations, less than two per 1,000 caused reactions.

Of 2,390 employees, four persons per 1,000 had reactions.

You can see from the above that the reactions are both mild and rare.

I feel that the results that we have had so far have been encouraging and fully justify active immunization against tetanus.

The Ulcer Machine

As everyone knows, an executive has practically nothing to do all day except decide what's to be done, tell somebody to do it, listen to the reasons it should not be done, why it should be done by someone else and why it should be done in a different way; then to follow up to see that it has been done, to discover that it has been done incorrectly and to point out how it should have been done; to conclude that as long as it has been done it might as well be left as it is, to wonder if it is time to get rid of a person who can't do the thing right, to reflect that he probably has a wife and a large family and that certainly any successor would be just as bad and probably worse; to consider how much simpler and better it would have been done if one had done it himself in the first place, to reflect sadly that one could have done it in 20 minutes and, as things turned out, one has spent two days to find out why it has taken three weeks for someone else to do it wrong.

Iowa Industrial Health Survey, 1957-1958

By the Committee on Industrial Health of the Iowa State Medical Society

Numerically the United States is a land of small industrial operations. A major difficulty in occupational health is the provision of adequate medical services in these small plants. Despite endless efforts that situation has not been met. Few surveys have been made of any large number of small plants relative to the extent and nature of the medical services provided. In 1957-1958 the Iowa State Medical Society through its Committee on Industrial Health conducted such a survey and the results have been well analyzed. The full report appeared in the Journal of Iowa State Medical Society, *49:8, 510, (Aug.) 1959.*

This present presentation represents a condensation of the original report but the condensation chiefly is limited to the omission of a lengthy questionnaire utilized in the pursuit.

In choosing to use a questionnaire, the Committee hoped to suggest, particularly to the owners of the smaller plants, just what a program in industrial medicine includes, yet it realized that the advantages of any such plan, as well as the chances of getting one established, varied greatly with the size and type of employment.

The results of the survey have shown that very little was omitted from the questionnaire, and if it was at least read by nearly all of the 999 employers to whom it was mailed, one can take for granted that the Committee's educational objective was achieved. But the statistical summaries of the answers have been valuable, too.

This first state-wide occupational health questionnaire was sent to all employers of 50 or more persons in Iowa, and nearly 40 per cent replied. The Committee regards this as a highly satisfactory indication of management's concern about the problems in this field.

Techniques Used in Making the Survey

The state was divided into districts (Figure 1), each representing an area of some industrial concentration. A local committeeman was assigned to each of them, and he was made responsible for results from his area. His personal knowledge of the local industries and his use of his own chamber of commerce were very effective. In general, as it turned out, the larger the city, the smaller was the percentage of returns, but the variations were not great. In at least two districts, over 50 per cent of the employers replied.

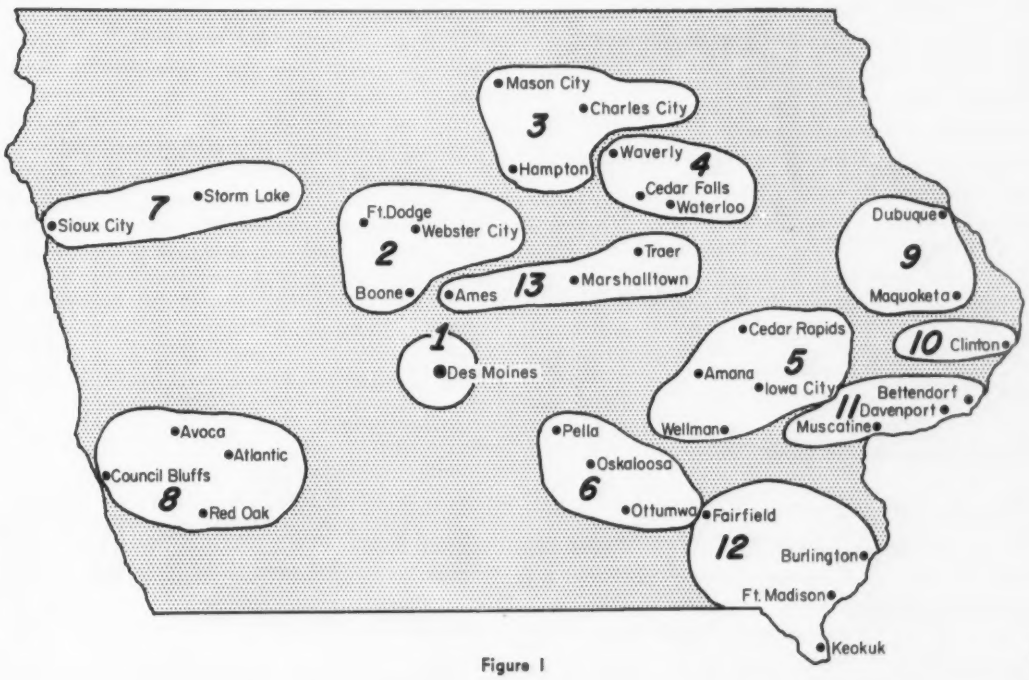


Figure 1

One of the Committee's most difficult tasks was that of compiling an accurate mailing list. The very fine tabulation of Iowa manufacturers that had been published in 1955 by the Iowa Development Commission was extremely helpful. For each city having a population of 10,000 or more and for each smaller town known to have at least one industry employing more than 250 people, the Development Commission's list was brought up to date by checking with all local chambers of commerce for the names of the firms having 50 or more employees. The groups that made up the final list included many non-manufacturing ones — utilities, construction and transportation firms, wholesale and retail organizations, and school teacher, hospital employee, and city and county government worker groups. A great deal of telephoning and letter writing was entailed.

The questionnaires were sent out from and were returned to the office of the Iowa State Medical Society, but the tabulations were made by Mrs. E. A. Larsen, of Centerville, the energetic wife of the chairman of the ISMS Public Health Committee.

Classification as to Type of Employment

Figure 2 shows the types of employment represented in the questionnaires that were returned. The workers in some of these organizations are not subjected to the physical hazards that are involved in manufacturing. However, the employers in all instances have identical responsibilities under the compensation laws, and suffer much the same financial losses as a result of nonoccupational disabilities. Of the 395 replies, 60 percent were from manufacturers, but of the 598 manufacturers to whom questionnaires were sent, 42 percent were returned — only slightly more than the percentage for the other groups combined.

CLASSIFICATION AS TO TYPE OF EMPLOYMENT

999 Sent Out : 395 (40 %) Returned

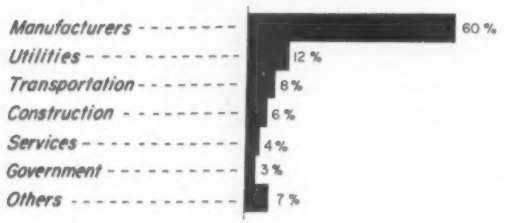


Figure 2

Make-Up of Employee Groups

Figure 3 shows a breakdown by size of plant and the proportions of men and women among the employees. As is quite understandable, the numbers of replies varied directly with the sizes of plants — i.e., a greater share of large organizations than of small ones answered the questionnaire. Over 120,000 individuals were covered in the replies received.

It was surprising to find that the percentages of women employees varied little with the sizes of plants. The Iowa figures would seem to be near the accepted national average. If, as most people agree, the problems of the home fall principally upon the housewife, then many of the women seen either by the family physician or by the company doctor are really holding down two jobs, one or both of which may be quite difficult. When nearly one-third of the working population consists of women, many of whom have families, it would seem that insufficient study has been given to the costs of their absenteeism, to the number of their compensable disabilities, to the psychosomatic status of each individual herself, and — perhaps most important — to the effect that the mothers' absence may have on the homes from which they come.

It is fortunate that the Committee asked, "Are you a branch plant of a larger corporation?" For that question elicited a number of interesting replies. Only 125 answered it, and it would seem that unless the answer were affirmative, the question was frequently left unanswered.

CLASSIFICATION BY SIZE OF EMPLOYMENT GROUP

	A	B	C	D	E	F	Totals
No. of Employees	50-100	100-200	200-500	500-1000	1000-2000	2000 +	
No. of Plants Replying to Questionnaire	172	96	69	32	19	7	395
Total No. Employees	12,070	14,538	19,760	19,586	27,207	27,859	121,020
% — Men	68	71	70	63	83	67	70
% — Women	32	29	30	37	17	33	30
No. of Iowa Establishments That Are Branch Plants	32 18 %	34 35 %	25 36 %	13 40 %	14 73 %	7 100 %	125 32 %

Figure 3

Because, as has been mentioned, replies were sent by a higher percentage of large employers than of small, and because it appears that more of the large plants than of the small are branch operations, the over-all 32 percent indicated by the survey is probably too high, and yet many of Iowa's so-called "small" industries are parts of interstate companies. It can be seen from column F that every one of the replying companies in the largest class indicated that it is not independent (Figure 3).

At present, the Committee believes, the greatest stimulus to small-plant medicine is the increasing geographical spread of large corporations. Many have built or acquired facilities throughout the Middle West, bringing with them planned medical programs, frequently guided by experienced medical directors. But more often than not, in such cases, the medical programs are organized and directed from afar, and their real success rests upon the Iowa doctor or doctors who actually operate them. Each one is dependent upon the knowledge and enthusiasm of a local physician, working with the personnel director and the manager of the branch plant, and having the friendly cooperation of his colleagues in the medical profession of the community. In this respect, the branch plant has no advantages, and its costs can be no less than those of other occupational groups in the same area. The small independent employer would do well to map his program after those of branch plants of similar size whose methods have already been tried and proved.

First-Aid Facilities

In its questionnaire the Committee asked, "Do you have more than the so-called cigar box first-aid-kit facilities?" Figure 4 shows that only 20 percent of the group of smallest plants answered affirmatively, but ever greater shares of the larger and larger plants answered "Yes" — 51, 58, 94, 100 and 100. Over all, 46 percent of the answers were affirmative.

To the question, "Do you have facilities for the care of the minor medical complaints?" affirmative answers came from 26, 54, 81, 89, 85 and 100 percent of the plants grouped according to increasing sizes. Over-all, "Yes" replies to this question were given by only one half of the firms replying.

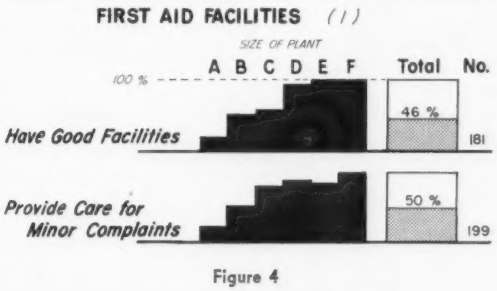


Figure 4

Industrial Nurses

The trained nurse plays a remarkably important part in the small-plant medical picture, and yet the Committee's survey (Figure 5) disclosed only 61 full-time nurses in this field — far fewer than are employed by each of several large corporations in this country. Eleven graduates provide part-time service, and 23 presumably have had some special industrial training. Certainly, the great majority gain their experience on the job. Every industrial nurse needs and desires the supervision of an appointed company doctor, no matter how brief a time he may spend in the plant. For any young lady interested in nursing and in this type of employment, the field is wide open.

Figure 6 charts the answers to some questions that the Committee asked regarding materials and instructions available to industrial nurses or other persons who administer first aid. A few simple medicaments such as are found in a home medicine cabinet — for treating conditions about which the individual would be unlikely to consult his doctor — would seem indicated, and yet in

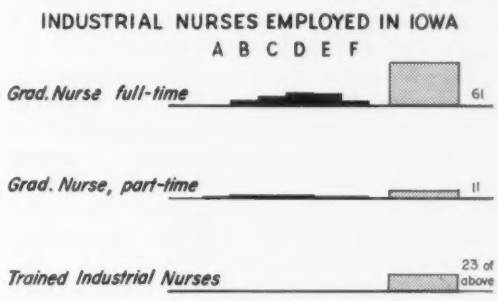


Figure 5

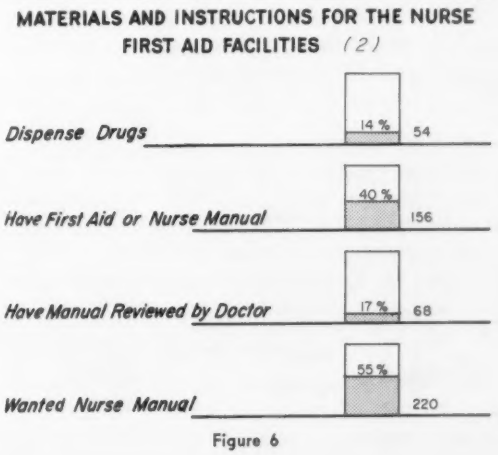


Figure 6

only 14 percent of the plants were such available. The figures for the different sizes of plants follow the range that might have been expected.

The use of a first-aid or nurse's manual would indicate real effort on the part of small plant managements to handle their emergencies in the best possible manner. Such instructions should be reviewed by a physician and revised so as to make them appropriate for the type of employment involved, and as evidence of such review and adaptation, they should bear the doctor's signature. In its questionnaire, the Committee asked whether such instructions had been made available, and whether they had been examined and endorsed by a doctor, thus suggesting the wisdom of that procedure. The doctor's signature not only provides some assurance of the adequacy of the instructions, but protects the nurse or layman who dispenses an aspirin or laxative from being accused of practicing medicine, since when the doctor has signed the instructions, they have become the doctor's orders. In 1955, the ISMS Committee on Industrial Health had compiled a set of instructions for industrial nurses and had distributed 2,500 copies throughout the state. Of the firms replying to the 1957-1958 questionnaire, 220 (55 percent) expressed a desire for copies of that booklet. The requested copies have subsequently been mailed.

Industrial Physicians

Figure 7 shows that 125 of the replying companies have company doctors. If failure to answer that question were considered a negative response, one could conclude that only 31 percent of the firms that answered the questionnaire have definitely-appointed company physicians (12.5 percent of all those to whom the questionnaire was sent).

The Committee thinks that its question about full-time plant physicians must have been misunderstood, for as Figure 7 shows, 25 firms answered "Yes," and it believes that there are fewer than that many doctors in the entire state each of whom is employed full-time by a single company.

It has been emphasized repeatedly that some in-plant visits are essential to an efficient medical service, even if such visits total no more than two or three hours a week. By distributing his time carefully, the physician can give this type of service to a number of small plants, besides carrying on a private practice.

Most men, the survey responses showed, are paid by the hour for such work, and the small percentages that it showed were paid retainers is indicative of how little this mode of payment is used. Surprisingly few firms indicated that they paid doctors by both methods.

Choice of Physician

Figure 8 charts the affirmative answers given to each of an interesting series of questions:

"In company-doctor relationships, would in-plant visits better acquaint the physician with the nature of the employer's work?"

"In case of an on-duty injury or an occupational illness, is the physician chosen by ( ) Employer? ( ) Employee? ( ) Insurance company?"

"Do you have a clear understanding of Iowa laws as to choice of physician in compensation cases?"

"Do you use other than M.D.'s in treating compensation cases?"

The fact that 42 percent answered the last of these questions affirmatively should interest all those who feel strongly either way on this controversial issue.

Three years ago, the Iowa State Medical Society sent out a questionnaire to all its members relative to their interest in industrial work. From the comments contained in the replies, it was evident that there were divergent interpretations or misunderstandings of the law governing

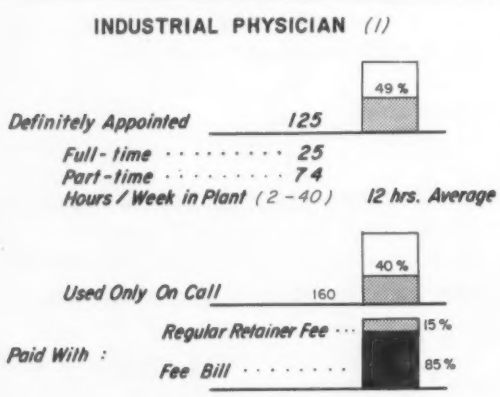


Figure 7

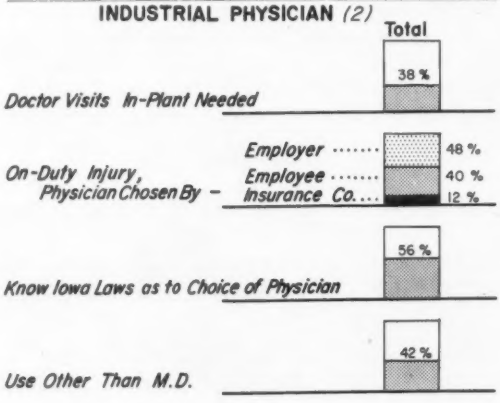


Figure 8

choice of physician in compensation cases. Thus, though 44 percent of the employers who answered the Committee's later questionnaire were willing to admit that they had no clear knowledge of the statutes, many doctors had been no better informed about them.

It is therefore appropriate that an explanation of the laws contained in a letter from the Iowa State Industrial Commissioner, Mr. Earl R. Jones, addressed to the chairman of the Committee, should be quoted here in its entirety:

Dear Dr. Lohmann:

Your letter of October 1 has been called to my attention for answer. The principal question raised by your letter is, "Who has the choice of physician in compensable injuries and illnesses?"

Note: The department follows the general rule adopted by various states under the workmen's compensation acts that the right to choose the medical or surgical attendant and the hospital is usually in the first instance with the employer — and the injured employee cannot recover for unauthorized medical services incurred by him while declining without good reason the services so rendered — provided the offer is unequivocal and reasonable — and is also adapted to the treatment of the injured employee, because he is not bound, in spite of inconvenience and greater expense, to accept any tender.

I recognize that the American Medical Association and, in the main, a great many state and local organizations, stand firm on the basis that the right of the employee to select his attending physician should be maintained, and it is my personal feeling that this situation is the ideal one. However, for many years prior to my becoming the Industrial Commissioner of this state, the department followed the general rule above quoted, and while I have not changed the rule I have tempered the rule somewhat by stating that this rule must be followed with some degree of reasonableness. In other words it is my firm belief that where there are two doctors of equal qualification, one desired by the employer, and the other by the employee, that it is more reasonable to assume that the employee will be better satisfied with the physician of his choice — and in such circumstances our department has tried to go along.

The principal objectors, of course, to this plan are the employers and the insurance carriers that believe it is more difficult to obtain periodic reports from many doctors who are not in the habit of handling industrial disabilities.

I trust that this information will be of help to you and your committee, and I greatly appreciate your inquiry, and wish to assure you that if I can be of any further help that you will call upon me.

Very truly yours,
Earl R. Jones
Industrial Commissioner

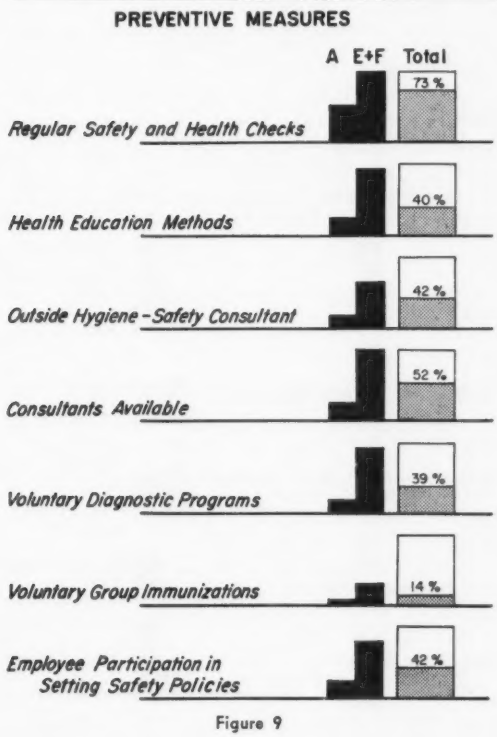


Figure 9

Plant Safety Programs

Figure 9 charts the answers to seven questions pertaining to preventive medicine — plant hygiene, sanitation and safety — and it further points up the differences between conditions in large and small plants. "Yes" answers to the question, "Do you make regular plant studies or inspections of accident or health hazards?" were returned by 51 percent of the small plants (50 to 100 employees), and by 100 percent of the large ones (1,000 employees or more).

"Yes" answers to the question, "Do you use methods of health education, such as pamphlets, movies, etc.?" were given by 23 percent and 92 percent, respectively.

The next question was, "Do you use outside consultants relative to plant hygiene, sanitation and safety?" Many large factories have their own safety engineers and industrial hygienists, yet even here there was much the same difference between the answers given by the managements of large and small plants. Sixty-five percent of the large firms responding said they use outside help, and only 20 percent of the small ones said they did, and it is in the small plants that such services would seem to be most needed. Only 28 percent of employers in

Group A indicated that they were "aware that such consultants are available and know how to obtain their services," whereas 100 percent of employers in Groups E and F said they did.

To the question, "Do you use any voluntary group diagnostic program such as TB screening?" "Yes" answers were given by 20 and 92 percent, respective, or by 39 percent of the total.

Only 9 and 30 percent (average 14 percent) answered "Yes" to the question, "Do you sponsor any voluntary group immunizations such as the use of cold vaccines?"

As an index of labor-management relations, it is interesting that only 42 percent of the employers who answered the Committee's questionnaire indicated that their employees are represented when health and safety policies are formulated. "Yes" answers were given by 80 percent of the large employers and 23 percent of the small ones.

Employers and Their Employees' Family Doctors

Many private practitioners of medicine are not in sympathy with the efforts being made in the field of occupational medicine, as they presently see them. Their attitude seems to arise partly from a lack of knowledge of the many employee health problems that managements face, and also from a lack of information on the efforts employers are making to do something about them. This attitude that many physicians hold shouldn't be taken as reflecting a selfish individualism or an unreasoning obstinacy. Rather, in their preoccupation with doing their own jobs well, doctors sometimes fail to acquaint themselves with the health problems that modern industries occasion, or are inclined to minimize the possibility that their patients' ailments may have resulted from materials or conditions at their places of employment. Furthermore, in their dealings with insurance companies or employers about ailments or injuries that are undeniable compensation cases, and also about nonoccupational illnesses which result in absences from work or are covered by nonoccupational health insurance, doctors may in some measure be justified in regarding particularized requests for diagnoses and prognoses as third-party interference in the practice of medicine. On the other hand, managements are being required to pay all or part of group health insurance premiums, and doctors have been slow to see and to make allowances for the extremely heavy burden that has thus been placed upon them.

So as to get some data to use in attempting to clarify doctors' thinking about the role of the private practitioner in industrial cases, the Committee asked employers several questions about their dealings with such physicians. Figure 10 summarizes their answers. An over-all 71 percent reported "good relations with the family doctor" (55 percent of the small companies and 94 percent of the large ones). Only 50 percent of the large companies and 67 percent of the small ones answered "Yes" to the question, "Do you accept the statement of the employee's physician as the sole criterion as to the cause and length of an illness absence?" Strangely enough, sufficient "Yes" answers were returned by the middle group of employers to raise the over-all average to 71 percent. Only 50 percent of the large employers said they "accept his opinion as to the capability of the patient to return to work after an illness," but again the over-all percentage of "Yes" answers was higher — 76 percent. Much could be said regarding the employers' reasons for wanting their own doctors to examine such employees, particularly after long illnesses, but their attitude seems to have been summarized satisfactorily by the bulk of the large employers' answers to the next question. Eighty percent of managements in the 1,000-employee-or-more class said they think the workers' doctors sometimes misuse their privilege of deciding when a man may return to work.

All of the employers in the large groups and over half of the total said they believe "it would be advantageous if the employee's doctor better understood the nature of his patient's employment."

Employers' Share in Nonoccupational Health Programs

In answering the question, "Do you practice any system of home visits or telephone calls in checking on illness absences?" 80 percent of employers in the large firms, but only 20 percent of

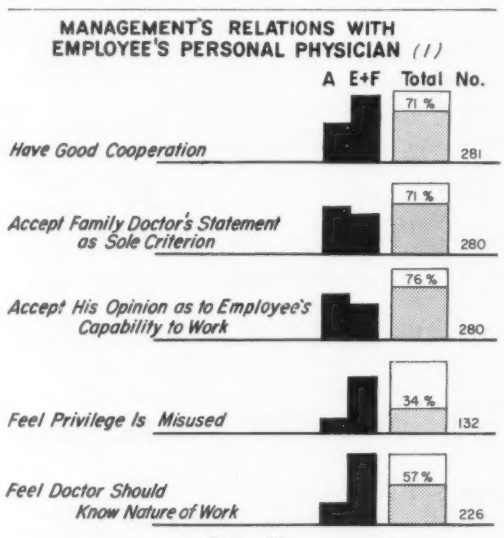


Figure 10

those in small ones said, "Yes" (Figure 11).

There is nothing misleading in the question, "Does your medical service treat other than minor nonoccupational illnesses?" yet in the large-plant groups 34 percent answered "Yes" to it. Except for a few who could have been expected to misinterpret the question, the Committee expected every employer to answer "No." It seems likely, therefore, that the apprehension of the 98 percent of Iowa doctors who are private practitioners may in some measure be justified. More of them are needed, part time, to fill the needs of small plant medical programs, but they are reluctant to enter a field, the purpose and scope of which aren't altogether clear.

When they were asked, "Do you ever treat employees on instructions from the family physician?" 40 percent of the large employers answered "Yes." Facilities in small plants usually would be inadequate for such service, regardless of what the employer might be willing to do along this line. Perhaps the answers even of large employers to this question shouldn't be interpreted as indicating a widespread willingness to participate in the treatment of their employees' nonoccupational ailments except when so doing will keep their men at work uninterruptedly. At least, unlike employers in some areas of our nation, Iowa firms don't generally undertake to provide all medical care for their employees and their employees' dependents. Only 6 percent, of the companies answering the Committee's question on this point, indicated that they provide diagnostic service and medical therapy to members of their employees' families.

Employers were asked to estimate the percentage of their workers who, they thought, would say they had no family physician. Of those who answered, the estimates ranged from 10 to 70 percent. In one plant that employs about 800 people, a rather accurate spot check was

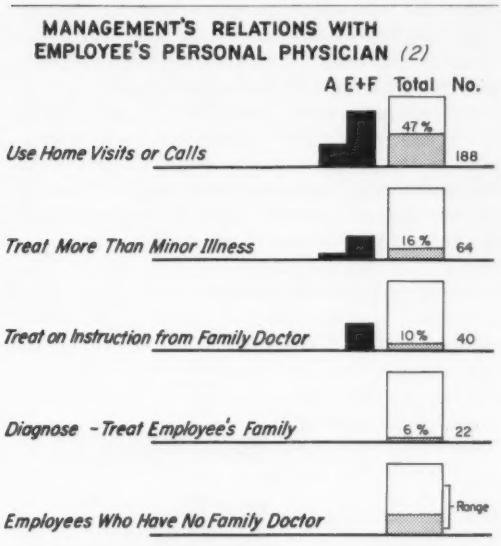


Figure 11

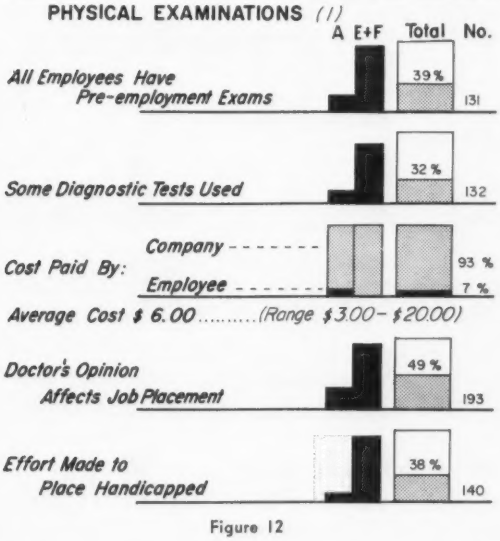


Figure 12

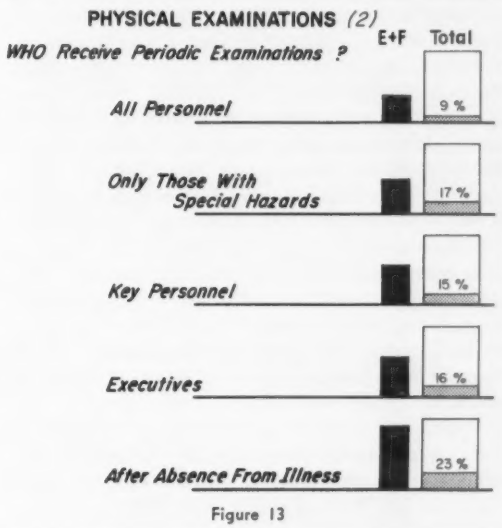


Figure 13

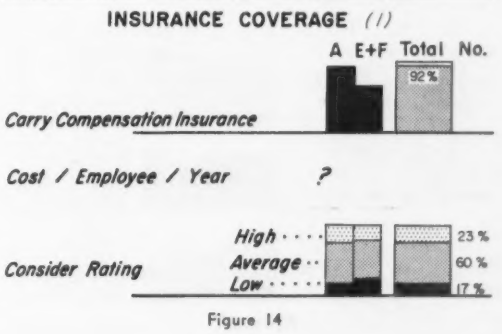


Figure 14

made, and about 50 percent indicated they had no personal medical attendant.

Physical Examinations

Periodic physical examinations, it appears (Figure 13), are made "on all personnel" in 38 percent of the plants employing over 1,000 people; on only "those with special hazards" in 50 percent; "on executives" in 58 percent; and on employees returning to work "after absence for illness" in 70 percent. In a few companies, extensive yearly exams are made, including such things as chest x-rays, blood and urine examinations, electrocardiograms, etc., but who does the interpretations and how the findings are used to the advantage of the individual are questions about which there remains considerable doubt. In this area, again, there seems to be some justification for concern by county medical societies about possible encroachment upon the personal physician-patient relationship.

Insurance Coverage

Apparently some of the large companies are able to budget their own compensation costs, but as Figure 14 shows, 65 percent of them, and as many as 94 percent of firms in Group A place their risks in the hands of insurance companies.

Many employers did not try to state their "cost per employee per year," and thus Figure 15 contains no averages. For what such statistics may be worth, however, it can be mentioned that the over-all average cost per employee per year came to $30. The range was extremely wide — from $7.50 to $80. The companies with under 1,000 employees reported paying almost 10 percent more than those with more than 1,000, the averages being $35 and $29, respectively. There was a negligible correlation between the size of a company and whether its management considered its compensation costs "high," "medium" or "low."

Figure 15 shows the percentages of firms which carry "nonoccupational health insurance" on employees, either partially or wholly at company expense. Such programs were reported by 65 percent of the firms in Group A; 81 percent of B; 78 percent of C; 90 percent of D; and 96 percent of E. As to the percentage of cost carried by the company, there was little variation. For all of the firms reporting, the average cost per employee per year was $69.75, but for some reason it was only $45.12 for companies with over 1,000 workers.

Figure 16 charts the "comparison between compensation insurance costs and nonoccupational health insurance costs." Over-all, employers reported that their nonoccupational insurance expense was 35 percent of the total, and there were only slight variations in the figures given by the different sizes of firms. In the plant previously referred to, the nonoccupational health insurance costs last year were five times the compensation costs, however, amounting to about $.55 per hour for each employee.

Seventy percent of the employers agreed that "such insurance costs should be considered a part of fringe benefits." It would seem well to remember that no matter what percent is paid by the company or how high the cost in terms of the benefits derived, most of the expense is passed on to the consumer.

The Committee was interested to learn that

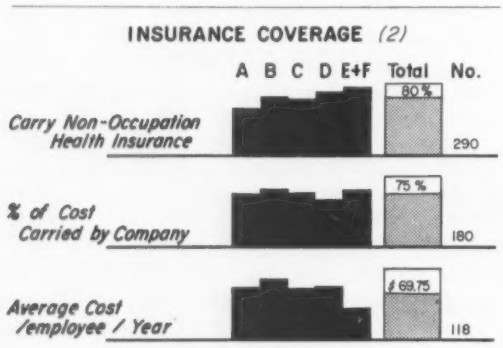


Figure 15

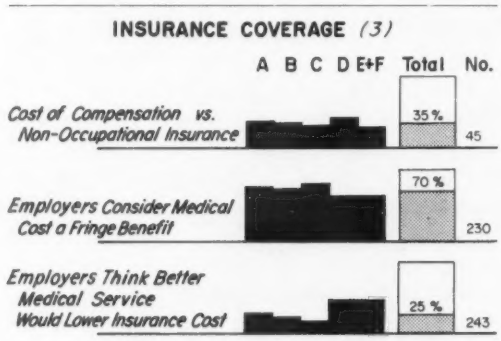


Figure 16

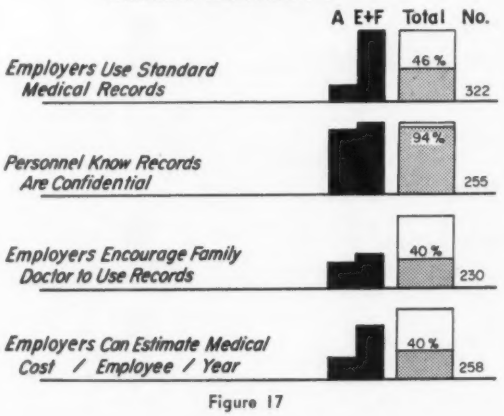


Figure 17

47 percent of the managements of companies employing more than 500 people thought that "better in-plant medical service might lower insurance costs." Over-all, however, just 25 percent of the replies gave this opinion.

Medical Records

All of the large industries and 23 percent of the small ones reported using "some standard type of medical record on each employee" (Figure 17). Nowadays, when so many examination records and insurance forms pass through the hands of numerous personnel, the confidential nature of the employee's medical record deserves repeated emphasis. It was good to learn that 90 percent of the employers in Group A and 100 percent of the employers in Groups E and F thought that this aspect of their employees' privacy was being satisfactorily protected. Thirty-four and 46 percent, respectively, said they "encourage the availability and use of medical records by employees' personal physicians."

The last line in Figure 17 and all of those in Figure 18 show the answers to a series of questions that the Committee asked as a means of suggesting the uses to which a company's medical records can be put. Of the replying firms, 258 felt that their records were "adequate bases on which to estimate total medical costs per employee per year." Thirty percent of companies in Group A, and 85 percent of companies in Groups E and F said so. Forty-nine and 96 percent, respectively, said they are able to "rate lost-time accidents in usual rating," and nearly as many could "rate absenteeism from nonoccupational illnesses." "Yes" answers to the question "If you increased your medical program would you be able to make a fair comparison of the costs and benefits under the new and the old program?" were returned by 90 and 51 percent, respectively. It is understandable that 77 and 66 percent thought "it would be helpful in comparing averages with those of other companies."

Figure 19 shows that 167 employers said they "would like to meet with interested doctors to discuss how industrial health plans can be improved." The heading for the third line in the figure is probably an oversimplification of the employers' answers to the question, "If some of the advantages experienced by large corporations were made available at comparable costs by use of part-time nurse and doctor, would such benefits to employees and company seem worth a trial?" Only 20 percent answered the question at all, but 88 percent of those who replied said, "Yes."

Seventy-five percent indicated that they would like copies of a summary of the results of this survey.

Blueprints for Improving Industrial Medicine

It should be obvious that the Committee on Industrial Medicine of the Iowa State Medical Society, in its survey, has attempted to suggest some improvements that individual managements can introduce, as well as to elicit information about the present state of industrial medicine in Iowa. It tried to place proper emphasis on each part of a complete program.

The differences between arrangements in small and in large employment groups are self-evident. In some companies, a great deal of attention is given to one phase of the program to the exclusion of others. Many are using pre-employment examinations, but in many instances are making no follow-up studies of the individual employee's physical and emotional status. Industrial medicine journals are filled with articles on such problems as "The Cardiac in Industry," "The Diabetic on the Job," "Visual and Hearing Losses in Industry," and "Alcoholism Among Industrial Workers," among others, yet workers in small plants aren't being given the benefit of such research.

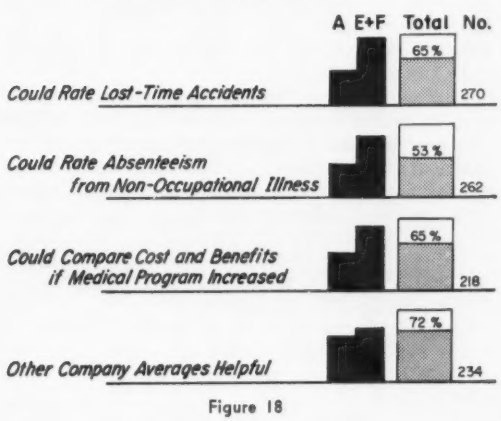


Figure 18

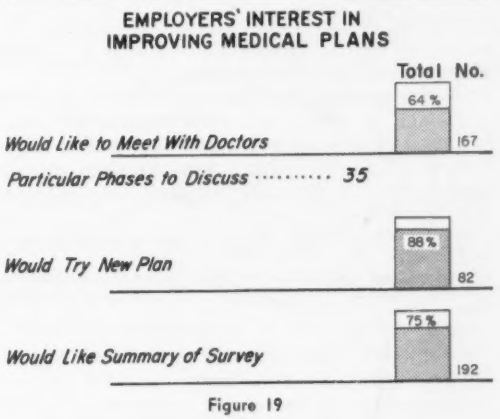


Figure 19

The Committee believes it is quite possible to bring a balanced industrial medicine program to such small occupational groups. With an intelligent understanding of what is to be done, success will come from a cooperative effort of all concerned.

The Hartford Plan, started in 1946, is a good way of setting up a medical service for several plants that are located within a community. Under it, a full-time doctor visits each of eight plants each day. Together they employ a total of between 3,500 and 4,000 workers, and each employs a full-time nurse.

The Committee's survey has revealed that there is a real need for an extension of industrial medical services in Iowa, particularly for the benefit of workers in small plants. In some localities, schemes on the order of the Hartford Plan may be practicable. The ISMS Industrial Health Committee should like to help get them started, in order that medicine may better serve the working people of Iowa.

Areas in Industrial Dentistry Frequently Overlooked

1. *Gingival Disease:* In a plant where the average age of employees is over 25 years gingival disease is one of the most frequent conditions confronted by the industrial dentist. Where local causes, such as faulty occlusion, are evident these usually respond to local treatment. However, gingival disease may be one of the more important diagnostic signs in establishing the presence of systemic disease. Example: leukemia, diabetes, lupus erythematosus, etc.

2. *Dental Caries:* The ravages of tooth decay are ever present in almost any population. In some cases where faulty diet or systemic disease may play a significant role sound advice may be offered to alleviate the condition.

3. *Denture Sore Mouth:* Inflammation of the mucosa following the insertion of an immediate denture or resulting from a high spot on the inner surface of an older denture may be relieved by grinding the high spot and by applying a corticosteroid ointment in a denture adhesive powder to the inner surface of the denture before inserting it in the mouth. Prompt and sustained relief usually follows. The steroidal ointment to be used may be hydrocortisone, prednisolone, triamcinolone or dexamethasone.

4. *Submucous Clefts In Palate:* When examining the palate because of an ill-fitting denture one should be aware of the possible existence of a submucous cleft which is associated with congenital abnormalities.

5. *Facial Pain And Various Tics:* It is most important to differentiate between true tic douloureux and pain arising from other causes. Some tics are of psychosomatic origin and these require special attention from the standpoint of diagnosis and treatment.

6. *Canker Sores:* These lesions are frequently encountered among employees of both sexes. They are troublesome and require special attention. Stress from anxiety or other causes play a significant role in their etiology. Treatment with gamma globulin, corticosteroid ointment or, at times, with psychotherapy usually is beneficial.

7. *Contact Dermatitis:* The most frequent causes of contact dermatitis confronting the dentist are dentifrices, lipstick, or acrylic resin. The best treatment is withdrawal from contact with the causative agent; however, topical application or systemic treatment with corticosteroid ointment usually produces prompt and favorable results.

8. *Temporomandibular Joint Dysfunction:* This condition is quite prevalent but usually remains undiagnosed. Removal of the causative factor or intra-articular injection with hydrocortisone acetate saline suspension usually produces excellent results.

9. *Nailbiting:* This condition should not be overlooked as it is a frequent cause of gingival disease. To overcome this habit the plant physician should be consulted and psychotherapy advised in many instances.

10. *Adrenal Insufficiency:* This condition could arise from many causes including abrupt stoppage of corticosteroid therapy. Even the removal of a tooth from such patients may prove fatal. The dentist should keep an emergency supply of soluble corticosteroid solution for intravenous use. Prompt action could save the life of the patient if "adrenal crisis" is evident.

11. *Saliva Tests:* Saliva contains many substances which may aid in the diagnosis of an obscure condition. A knowledge of the bacterial and chemical components is very helpful. Many systemic conditions, including pregnancy, may be diagnosed with the use of salivary tests.

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Presented at the meeting of the American Association of Industrial Dentists, Sherman Hotel, Chicago, Ill., April 25-May 1, 1959.

International Development of Occupational Medicine

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From the elimination of industrial health hazards as a goal, the scope of occupational medicine is widening to include within its province the maintenance of the general health and capacity of the worker.

Some knowledge of health risks at work existed over a thousand years ago in many countries, although in those days industry was on a small scale and employed comparatively few workers. According to clinical observations by skilled physicians several occupational diseases were then reported, for instance phtisis due to the inhalation of stone dust in quarries and mines, and poisoning due to lead dust inhaled and swallowed or to mercury vapor inhaled in the mercury mines. The works of Hippocrates, Galen, Ramazzini and Linnaeus contain reports on occupational diseases and on health hazards at work. This literature was well known 200 years ago and books on occupational diseases were already to be found in university libraries in many countries.

When industrialization started at the end of the 18th century in England, the increased risks to workers' health were obvious to physicians and laymen. The influence of conditions at work upon the health of the workers was then studied by Thackrah among others, and in order to improve working conditions and eliminate occupational health hazards the first law on workers' protection was passed in England in 1833, and a special authority, the Factory Inspectorate, was organized to supervise and enforce it. Accident prevention, the improvement of general hygiene at work, including such factors as ventilation and lighting, legislation on workers' protection, hours of work, employment of children and women and the organization of factory inspectorates were the dominating trends in occupational health in most industrialized countries during the 19th century. A growing interest in the study of occupational diseases was evident at the end of this period. The early history of occupational health can be studied in the books by Hunter, Lloyd Davies and Teleky.

Occupational health at the beginning of the 20th century was characterized all over the world by studies on occupational diseases, their causes, mechanism, symptoms, therapy and prevention. Research and field studies were carried out during the whole period, being particularly concerned later on with new occupational hazards arising from new industrial processes in the chemical and other industries or from the use of atomic energy.

From 1920 onwards a great many studies were devoted to accidents at work, and especially to the human factor, the mechanism of the accident and the psychological aspects of prevention and safety education.

In 1928 Dr. G. C. E. Burger was appointed to Philips' Health Center at Eindhoven, Netherlands, one of his duties being to advise the management on all matters concerning the health of employees.

From 1935, activities in the field of occupational health were also directed towards the general health of the worker, no longer being restricted to occupational disease and accidents.

Reprinted from *Aspects of Health Care and Society* (Assen, Netherlands: Van Gorcum & Co., 1959).

The field of occupational health was widened, and from dealing mainly with occupational hazards and conditions at work, occupational health took on a broader purpose, namely to preserve and maintain the general health of the worker, contributing to the establishment and maintenance of the highest possible degree of physical and mental well-being. A survey of the international development of occupational health during the 20th century, with special reference to the experience gained in industry, will be given under the three headings just mentioned.

At the beginning of this century, the study of occupational diseases was facilitated by the availability of improved diagnostic methods, especially the invention of radiography. X-ray examination of the lungs made it easier than before to diagnose dust diseases of the lungs such as silicosis and its common complication, tuberculosis. It was now obvious that there was a high incidence of silicosis or "miners' phtisis" among workers in mines, stone quarries and porcelain factories. Research and field studies were started in many countries.

Excellent reports were based on studies in the gold mines by Mavrogordato and others in South Africa, by Policard in France, by Sir Thomas Legge in Middleton and by the Factory Inspectorate in England. In that country the introduction of dust prevention caused silicosis to disappear almost completely among workers in porcelain factories. In Germany considerable experience was garnered early, thanks to research and field studies by Koelsch, Teleky, Jötten and Baader; in Italy, similar work was done by Devoto and others.

In the USA, studies on silicosis were started on a large scale after a silicosis epidemic among workers building a bridge in Washington. A silicosis study among workers in stone quarries in New England in 1932 increased interest in the prevention of this occupational disease. Legislation on workers' protection was now introduced and public departments of occupational health were organized, first in the states of New York and Massachusetts and later in other states. The pioneer work done on the prevention of occupational diseases by Alice Hamilton in the USA must be given mention here as also the studies of pneumoconiosis by Lanza and by Gardner. In Sweden, Bruce made an extensive study of the incidence of silicosis among workers in Swedish industries.

The new form of X-ray examination was not confined however to the tracing of pneumoconiosis, but was also of great value in facilitating the diagnosis of nonoccupational lung diseases such as tuberculosis. In Western Europe the examination of the whole population for lung diseases has developed out of the periodical fluoroscopy of employees in big firms; Philips' at Eindhoven were the first to start this examination, doing so at the suggestion of their industrial physician, Burger.

Research into and field studies of pneumoconiosis have been carried out at an increasing rate during the last 20 years. Modern techniques have been applied, as for instance the dust analysis of biological material such as lung tissues. Electron microscopes have made it possible to study the effect of the size of inhaled dust particles, including submicroscopic particles, on the lungs. Recent studies of the lung function, of the combined effect of different dusts, of changes in blood protein and of the microscopic pathology of occupational lung diseases have contributed to our knowledge of pneumoconiosis. The recent development of research in this field of occupational lung diseases have contributed to our knowledge of pneumoconiosis. The recent development of research in this field of occupational health can be studied in the books by Drinker and Hatch, Davies, and in the reports of conferences like that at Sydney in 1950, published by ILO, and in Münster Staublungenforschung.

Poisoning due to the handling of toxic material was detected and studied among workers in many industries; some examples are carbon monoxide poisoning in mines and the iron and steel industry, poisoning due to solvents in the chemical industry and printing, lead poisoning among painters and among workers in the porcelain industry and later among welders and workers in storage battery plants. White phosphorus poisoning was common among workers in the match industry at the beginning of the 20th century. Mercury poisoning was encountered among workers in mercury mines and in mirror and felt hat production and later among persons who handled organic mercury compounds while treating seeds and impregnating wood. Manganese poisoning, described, for example, by Baader in Germany, was found among miners in the manganese mines, among workers in dry battery plants and in firms producing coated welding rods.

Occupational skin diseases were found in an increasing number in many industries; they occurred among workers handling substances as various as petroleum products and grease, alkalis and acids, chlorinated hydrocarbons used as solvents, chromates and chromic acid, turpentine and formaldehyde.

The introduction of new industrial processes may give rise to new health hazards, and during the last decades occupational health research has tried to keep up with the speed of technical and industrial development and to eliminate health hazards right at the planning stage of new processes.

Some new occupational diseases might be mentioned. Berylliosis, a grave occupational disease occurring among workers handling beryllium, as do workers in the fluorescent lamp industry, occurred as a new occupational disease 10 to 15 years ago. Chronic cadmium poisoning among workers in storage battery plants, another new occupational disease, has recently been described in Sweden; later it was found in corresponding firms in other countries such as England, France and Germany. The health hazards arising from the use of atomic energy in industry will probably be one of the major problems of industrial health of the near future.

Research into occupational diseases started at the beginning of the 20th century; etiology, diagnosis, therapy and the prevention of serious cases by means of regular medical examinations were the subjects originally studied. Later technical prevention was added; this mainly comprised methods of analysing and keeping a check on industrial health hazards, such as the analysis of dust, vapors or gases in the atmosphere, or the measurement of noise or radiation. Close cooperation and team work between industrial physicians and nurses, safety and industrial hygiene engineers, engineers planning and directing production in industry and finally between employers' and workers' organizations is the theme now underlying the prevention of occupational diseases.

Institutes for research into occupational health, whose main activity is to study occupational diseases, have been founded in many countries, including Belgium, France, Germany, Italy, the United Kingdom, USA and USSR and, more recently, Yugoslavia and Finland. In some places these occupational health institutes form a department of a national institute of public health, such as the Federal Institute of Public Health, formerly in Washington, D. C., and now in Cincinnati, the Netherlands Institute for Preventive Medicine, Leyden, the National Institute of Public Health in Stockholm, the All India Institute of Hygiene, Calcutta, and the recently founded High Institute for Public Health, Alexandria. One of the oldest institutes for research into occupational diseases seems to be the Clinica del Lavoro, University of Milan, Italy, founded in 1902 by Luigi Devoto. In the United Kingdom the Medical Research Council has temporarily organized units for research into special problems; examples are the Pneumoconiosis Research Unit, Cardiff, and the Environmental Hygiene Research Unit, London.

The effect of preventing occupational health hazards can be seen in industry in the falling frequency of occupational disease in different occupations. For instance, lead poisoning was common 50 years ago among painters using lead compounds in painting and among printers using lead alloy in printing. Improved industrial hygiene has reduced the hazard in these occupations, and in most countries lead poisoning is now rare among painters and printers. At the beginning of the 20th century it was also common among workers in the porcelain industry, owing to their handling enamel containing lead. In many enamel processes lead has now been replaced by other substances; this together with improved industrial hygiene has reduced the incidence of lead poisoning among workers in porcelain factories. But in the meantime new techniques have developed in industry, and in many industrialized countries lead poisoning is now being found among welders in shipyards where lead painted metal sheets are welded or cut and among workers producing or repairing storage batteries.

In many countries there is legislation providing for the insurance of workers against certain occupational diseases as well as accidents. Gradually this insurance has been increased to cover more and more occupational diseases, as in Germany for instance; alternatively, the scheme has been extended to give general cover for all or almost all occupational diseases, as for instance in Sweden and in some states of the USA. As this insurance is usually paid for by industry, the reduction of the premium has in many countries been a very obvious stimulus to firms to obtain a high standard of industrial health services and industrial hygiene.

On the international level, more and more has been done during the 20th century to make it easier for experts of different countries to exchange information. The Permanent International Committee on Industrial Medicine, founded in Milan in 1906, has tried to organize international congresses on occupational health every third year. This organization has now grown considerably, it has members in most countries, and experts on occupational health from the whole world meet at the international congresses. The XII International Congress took place at Helsinki in 1957 and the XIII International Congress will take place in 1960 in New York. This international organization, which is now called the Permanent Committee and International Association on Occupational Health, has recently set up subcommittees to study special problems of occupational health, such as occupational diseases among workers in the textile industry, the maximum allowable concentrations and absenteeism in industry. The latter at the suggestion of Burger. International cooperation is indispensable, especially if sick-absence statistics (from different sources) are to be made comparable. A seminar on maximum allowable concentrations took place in April,

1959, in Prague, having been proposed by Burger.

Research into occupational diseases has also been organized on an international level by the European Coal and Steel Community; the special problems investigated have included silicosis and carbon monoxide poisoning. This research is carried out by institutes of occupational health in countries belonging to the community.

Shortly after the International Labor Office (ILO) was organized in 1919, a Section on Occupational Health was set up. During the first twenty years of its existence under the able leadership of Carozzi, this section has made a valuable contribution to knowledge of the subject by exchanging and distributing information. In particular, a publication on occupational health and safety and a bibliography of occupational medicine deserve mention. ILO has also adopted conventions and recommendations in the field of occupational health, such as those on lead poisoning (1919 and 1921), on medical examinations of young workers (1946) and on protection of workers' health (1953). A model code of safety regulations for industry was published by ILO in 1949. On special subjects ILO has organized conferences like the important one on silicosis held in Johannesburg, South Africa, in 1930, and that on pneumoconiosis held in Sydney, Australia, in 1950.

Since 1950 the World Health Organization has also been active in the field of occupational health, in close cooperation with ILO.

Within industrial medicine the prevention of and medical care and rehabilitation after accidents at work have been studied both from the scientific and practical points of view. During the 20th century the main trends in this field have been the statistical study of accident frequency and distribution, the testing of accident proneness and, later on, the more detailed study of the mechanism of accident causation and the various factors entering into it.

In spite of all the improvements in technical prevention, many accidents continue to occur in industry, and much study has consequently been devoted to "the human factor" in accidents. The first statistical studies by Greenwood and Woods (1919) and those by other research workers later showed that a small number of workers were responsible for a major part of the accidents. These studies were followed by many investigations into "accident proneness" and into the mechanism of the human factor in accidents.

During the last 10 years, however, it has been suggested that the statistical approach to accidents should be supplemented by "clinical" studies, in which emphasis was laid on all the interconnecting factors which, like links of a chain, lead one to the other until the final factor causes an accident resulting in minor or major injury. An excellent survey was published by Gemelli in 1955. Such clinical studies have shown that really accident prone individuals are rare, and that most human beings can suffer temporarily from accident proneness. It was not possible, by using statistical methods, to demonstrate the existence of accident proneness. It may be that most human beings are accident prone and liable to make unsafe movements during short periods, the reasons being medical and psychological. A study by Schulzinger on the "accident syndrome" shows that during one year a major proportion of accidents was caused by a minor proportion of workers, but over a longer period of 15-20 years, there did not seem to be any permanently accident prone individuals. Similar results have been found in a recent Swedish study, where a group of workers who had been involved in accidents were compared with a representative group of workers who had not. Here it was found that accident prone individuals, if any, were extremely rare, and that an accident occurs as a result of many factors bearing upon the working situation and the worker, and that one important factor is lack of education, knowledge and experience.

In the meantime, in order to prevent accidents with machinery, technical preventive measures have continuously been further developed. In several countries, legislation on workers' protection has now placed the responsibility for efficient prevention not on the firm using the machines but on the designer and producer. For instance, the Swedish workers' protection act of 1948 provides that machines must be fitted with protective devices prior to delivery.

On the international level the ILO has collected and distributed information on accident prevention and safety. A model code of safety regulations for industries was published by ILO in 1949. International conferences on accident prevention were held in Rome in 1955 and in Brussels in 1958.

At the beginning of the 20th century industrial medicine was mainly concerned with eliminating health hazards at work and improving the hygiene of working conditions. Gradually, especially from 1930 onward, it was pointed out that accidents and occupational diseases only constituted a minor aspect of workers' health. Studies on sick absence in industry, for instance that made by Gafafer in about 1935, showed that only about 10% of days lost owing to sickness were caused by accidents and occupational diseases, the rest being due to nonoccupational diseases. Gradually the aim of occupational health has changed from the elimination of occupational health hazards to the maintenance of the general health and capac-

ities of the worker in industry. It might be of interest here to quote the definition of occupational health given by the Joint ILO-WHO Expert Committee on Occupational Health at its first meeting 1950:

The promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations; the prevention amongst workers of diseases caused by their working conditions; the protection of workers in their employment from risks to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment, and, to summarize, the adaptation of work to man and of each man to his job.

In many countries, however, industrial medical services have concentrated on medical care after accidents and sometimes on medical care of nonoccupational diseases. Fifty to 100 years ago preventive measures were only a minor part of medical activities in industry. From 1930 on, industrial medical services were gradually transferring their main activities to the field of prevention. Large firms in many countries gradually started to organize industrial health services with the aim of maintaining the general health of the workers. Some firms were farsighted and started these activities early, as did Philips in Eindhoven, the Netherlands. Experience gained in large firms was made use of later by groups of small ones and medical services were organized for such groups; in France, the grouping was either in accordance with the location of the firms or with the industry they formed part of, but in other countries it was mostly on a geographical basis, industrial medical services being organized for groups of firms within the same area. Many practical difficulties were encountered, but useful experience has been gained at the Netherlands Institute for Preventive Medicine in Leyden, at Hartford, Connecticut, at Slough in the United Kingdom and in several centers in Norway.

The present principles of industrial health services have gradually developed out of experience acquired in different countries, mainly by health services in large firms. With slight differences of detail, the same principles have been applied in firms in USA and Mexico, the United Kingdom and France, Italy, the Netherlands and Germany, Yugoslavia, Scandinavia, Soviet Russia, Egypt and India.

One of the chief basic problems is to "adapt the worker to the job and the job to the worker." The first of these tasks, that of striking a balance between the demands of the job and the capacities of the applicant, is performed by means of pre-employment or preplacement health examinations. The purpose of the examinations is not to screen and reject people with impaired health but to find out if the health and capacities of the individual are equal to the demands of his future job. These demands change from time to time, and so do the health and capacities of the individual; usually, therefore, a check is kept by means of regular medical examinations, given annually in some firms, and concentrated on special groups of personnel in others. In Sweden, for instance, regular medical examinations are often held for special groups such as older employees (above 45-50), young employees (below 18), workers exposed to occupational health hazards (examination is compulsory for workers who are much exposed to silica dust, lead dust or fumes and benzene vapor), top executives and employees with high absence rates. The frequency of regular medical examinations depends upon the general health standard of the population, its morbidity, as well as the occupational health hazards in the industry in question.

At the end of the 19th century the aim of factory inspection was to prevent accidents and occupational diseases and supervise such general conditions of hygiene as ventilation, lighting, etc.

The endeavor to adapt the job to the worker has changed this aim. Now it is not only a question of eliminating occupational health hazards but of creating the best possible working conditions from the physiological and psychological points of view. This will not only prevent sickness but also lessen fatigue and improve the general health of the worker. This combination of technical and medical science and experience has formed almost a new field within occupational health, known as human engineering, ergonomics or biotechnology. Recent experience in this field has shown that it is especially important that machine design, working postures, movements, environment, etc. should be adapted to suit the human body and should take account of its limitations and capacities. In Europe the Ergonomic Research Society has stimulated research and the exchange of information in this field.

During the last decade, the experience gained in industrial health services has shown the increasing importance of mental health and human relations in industry.

The influence of mental health and human relations on psychosomatic diseases and on the incidence of psychoneurosis, maladjustment, absenteeism, etc. has been demonstrated in several studies, for instance in those by Russel Fraser in the United Kingdom and by Van Alphen de Veer in the Netherlands. It is interesting to note the number of studies or surveys that have been published on these problems; among them are R. F. Tredgold, Human Relations in

Modern Industry, E. Jaques, The Changing Culture of a Factory, T. M. Ling, Mental Health and Human Relations in Industry, D. Ross, Practical Psychiatry for Industrial Physicians, and in Germany, H. Kellner, Ein Arzt erlebt die Industrie.

Valuable information on the health of a group of individuals or of single individuals can be found from studies on absence from work. Absences may have purely medical causes such as sickness, but sociomedical or purely social causes may also influence the frequency and duration of absences. Interesting studies on this subject were published 10 to 15 years ago by Gafafer and later, in the USA, by Wade and others, in the Netherlands by G J. Fortuin and in the United Kingdom by L. G. Norman and F. H. Spratling, London Transport Executive. The need for comparison of the results given in different studies, and for as much uniformity as possible in the compilation of absence statistics has been stressed at many conferences. The subject was also discussed at the World Health Organizations' European Seminar on Occupational Health at Leyden in 1952, under the chairmanship of Burger and at the corresponding seminar held in the French language at Milan in 1953. A symposium on absenteeism was organized at the XI International Congress on Occupational Health in Naples and a subcommittee on absenteeism, set up by the Permanent Committee and International Association on Occupational Health, had its first meeting at Leyden in October, 1957, under the joint chairmanship of Burger and myself. A proposal for uniform records and reports on studies on absenteeism was worked out at this meeting and will be published in the near future.

The maintenance of the health of the worker in industry calls for team work involving the industrial physician, the nurse, the safety and industrial hygiene engineer, the production engineer and the foremen as well as the worker himself.

As regards the part played by the worker, the importance of health and safety education has been stressed in many countries. Much work has been devoted to these problems, and in the USA the technique of health education has been studied extensively. In Sweden, one scheme which has proved to be of great value in making the worker safety minded has been a correspondence course on safety and industrial hygiene which, over the period 1954-1958, has been followed by 80,000 workers and foremen. In addition to this general correspondence course on safety and industrial hygiene, special courses have been worked out for workers in different branches, including the building industry, mining industry, munition factories, etc.

The great number of war disabled in many countries has increased interest in rehabilitation and improved the technique of getting injured or sick people back to work by adapting them to a job corresponding to their reduced capacities. Experience gained in this field in Germany, France, Italy, UK and USA has been utilized in industry not only in the training of the badly disabled for industrial work, but also in the application of rehabilitation principles to people with less serious injuries and diseases. Special rehabilitation departments or small departments for convalescents have been organized in industry in many countries, improving the effect of therapy and reducing the duration of absence. Shortening the period of absence makes it easier for the patient to readjust himself both physically and mentally to his work. Many films on rehabilitation have been produced to demonstrate the principles and their application in industry. The support of international organizations, such as ILO and WHO, has been of great value.

With regard to the organization and administration of industrial health services, it is interesting to compare what has been learned in different countries. Most reports on this subject come from big firms where a special health service has been set up under the direction of an experienced and trained industrial physician. The industrial medical director supervises the activity of the industrial physicians, industrial nurses and first aid workers of the different firms, and he cooperates closely with the safety and industrial hygiene engineers and with the personnel department. From the organizational point of view the industrial health service is placed either directly under the top management, the executive director, etc., or under the chief personnel officer. Interesting surveys on industrial health services have been carried out in USA by Margaret Klem and others (*See Industrial Medicine and Surgery*, Dec., 1958, Feb. and Apr., 1959). The principles of industrial health services organization, based on experience in many countries, can be found in the reports of the ILO conference in 1958. "Organization of occupational health services in places of employment" is one of the main subjects that was discussed in the ILO Conference in 1958 and 1959.

Developments at national level — legislation on and other governmental intervention in industrial health matters, the conclusion of agreements between employers' and employees' organizations — have been very different from country to country.

In France in 1946 legislation was introduced whereby occupational health services were rendered compulsory for all places of employment.

The implementation of this legislation has been studied with great interest; it seems to be a model for legislation in several countries.

In the Netherlands, similar legislation has recently been introduced, providing for compulsory occupational health services in places of employment with more than a certain number of workers.

In Soviet Russia health services are compulsory in industry.

In USA and UK and many other countries the organization of industrial health services is voluntary, but there are special regulations for industries with certain occupational health hazards.

In Norway and Sweden industrial health services have developed on a voluntary basis, but are based on an agreement between employers' organizations and trade unions.

The coordination of industrial health services with public health services seems to be a difficult problem in some countries. Industrial health services have developed in connection with industrialization, the prevention of accidents and occupational diseases, the improvement of working conditions and legislation on workers' protection. At the national level this development has been under the control and supervision of the Ministry of Labor and influenced by employers' and workers' organizations. Public health services have developed because of the need for control and prevention of epidemics such as smallpox, cholera and typhoid. Later they became active in other matters, such as housing, nutrition, water and sewage control, etc. At the national level, public health services have been under the supervision of the Ministry of Health.

In many industrialized countries, the activities of public health departments in the field of occupational health have been restricted, because the need for activity in the field of epidemiology has been great, and also because occupational health was already being taken care of to some extent by factory inspectorates and by industrial health services. In such countries, where the development of occupational health and public health has by tradition been along separate lines, there may be some difficulties in the coordination of the two activities. However, it is particularly important that they should be coordinated, as the field of occupational health is now no longer restricted to accidents and occupational diseases, nor is the field of public health restricted to epidemiology. Both sides are now beginning to adopt the attitude that the human being must be looked upon as a whole and that the definition of health must be wide, including not only freedom from sickness but a state of complete physical, mental and social well-being. It is also obvious that many factors in or relating to working conditions will influence the individual's general state of health. On the other side there are many health factors within the family, at home, or in society which will influence behavior at work, human relations in industry or the performance of the individual worker. The need for coordination of public health and occupational health has been stressed by WHO, at the European seminars on occupational health.

Special problems within industrial health services have been studied as health problems for certain groups of employees, certain types of firms, etc. I would like to deal shortly with one problem of great importance in many industrialized countries, the problem of older workers in industry. The increasing standard of health with reduced infant mortality and reduced general morbidity among the population of many countries has contributed to the increased average length of life and the increased number of old people. In such countries in particular, the maintenance of the mental and physical health of old people and the adjustment of their work and working conditions to their changed capacities have become big problems.

Age reduces the average physical performance and capacity for muscular activity. The general physical capacities of a man of 60 years are about ⅔ of average capacities at 20 years, but the range within the different age groups is very wide. With their greater experience old people can compensate for reduced capacity for work by better planning of the task, performing heavy work for short periods and doing lighter work or resting in between. On the mental and psychological side the ability to work at a sustained high speed is reduced by age. On the other hand the ability to carry out precision work is very little affected. Old workers have reduced capacity for learning, but good results can be obtained if learning is coordinated with the earlier experience of the older worker. The problems of adjusting the old worker to the job in industry have been studied in many countries from the psychological, mental and physiological points of view; practical studies in industry have also been made. Many interesting reports can be found on this subject, such as Welford, Skill and Age; Clark & Dunne, Ageing in Industry; Report on the Third Congress of the International Association of Gerontology, London, 1954, Old Age in the Modern World; and a recent Swedish study by S. Forssman.

A practical problem is what degree of medical care should be provided by industrial health services, which should be essentially preventive, as has been pointed out in many studies. First

aid and emergency treatment is practically always combined with the preventive activities of industrial health services. In some countries, such as Denmark, France, Germany and Norway, the medical care given by industrial physicians and nurses is in accordance with regulations limited to first aid and emergency treatment. In other countries it has been found practical to utilize information about workers' health collected within industrial health service for the purposes of general medical care. In some countries this medical care is restricted to accidents at work and occupational diseases. In other countries medical care has been extended to cover nonoccupational diseases; sometimes only minor injuries and diseases are covered, as in Sweden for instance, but in some countries, such as Soviet Russia, there is full medical care not only for the worker but also for his family. Although from the theoretical point of view medical care is not part of occupational health, it might, depending on local conditions, sometimes be practical to arrange for some medical care to be given by industrial health services.

Occupational health in the less industrialized countries has called for special attention during the last 10 to 15 years. These countries are now trying to industrialize within a rather short period, usually step by step and in accordance with five year plans or the like. It seems that industrial health in such countries will develop in much the same way as it has done over the 150 year period in which Europe has undergone industrialization. In the beginning of such a period of industrialization it is the problems of accidents and occupational diseases that call for special attention. As industrial health develops in such countries, further problems arise that make the situation more difficult, and these will have to be solved by special arrangements. The general health standard of the population in these countries is usually not high; the expectation of life is short and there is a high morbidity rate from tuberculosis, malnutrition, anemia and malaria, among other diseases, sometimes tropical ones. A tropical climate will create special health problems in some of these countries. The situation in the labor market, arising from widespread unemployment and a superfluity of labor, will call for special attention. Industrialization within a period of a few decades, instead of a hundred years as in Europe, will create special problems. The process will make it necessary to transfer large groups of people from agriculture to industry. These men and women, living in small villages and used to working at their own speed in small groups, usually within the family, will be mostly transferred to large firms where they will have regular working hours, where the speed of work is generally decided by machines, and where they will have to work in large groups and to live in big industrial communities. The adaptation of people to these new conditions may create serious health problems, especially in the field of mental and social health, if industrial health services, including arrangements for housing and feeding the workers, etc. are not organized to forestall these special health hazards.

The Permanent Committee and International Association on Occupational Health, founded in 1906 in Milan, has stimulated the exchange of information between experts from different countries, especially at international congresses on occupational health. A report of an ILO Expert Committee published in 1955, "Guiding Principles for the Organization of Occupational Medical Services in Places of Employment," has summarized the experience gained in some of the industrialized countries. The WHO Seminars on Occupational Health (report published in Bulletin of WHO, 1955, 13) have made valuable material available. A survey of occupational health legislation in Europe was published by the WHO Regional Office for Europe in 1956. A joint ILO/WHO Seminar on the Activities of Industrial Nurses took place in May, 1957, in London. In October, 1957, the WHO European Regional Office organized a conference in Germany on industrial health services; a traveling seminar on industrial health services was held in May-June, 1958, in France and England. Through the intermediary of the WHO or ILO, experts on occupational health have accepted invitations to work in many countries. All these international activities have been of the greatest value in disseminating information from different countries and stimulating research and field studies in industrial health.

On the basis of the development of the last 50 years one may foresee some future trends and important problems. Automation will create problems because of increased mental demands and decreased physical demands on the worker. The preference for younger workers to fill these new jobs will raise the problem of replacing and retraining workers of 40 years and above. The use of atomic energy in industry will create many problems in connection with the control and supervision of hygiene at work and of the health of workers. Suitable plans for organizing industrial health services for groups of small firms must be further developed. The important special health problems connected with the rapid industrialization of less industrialized countries must be emphasized at the national and international levels.

Medically Irrelevant

The odd looking, forklike device pictured in this column in August is a tool for the fastidious eaters who decline to bite corn off the cob.

The platemark indicates that this piece is old Sheffield of the period 1728 to 1792. Unfortunately, the platemark is spurious. The piece was manufactured about 1900 and is not Sheffield at all. It is unlikely that this evidence of gentility ever graced a British table.

The following correct answers to the query were received:

Dear Sir,

The decorations on the instrument . . . of course immediately suggest a piece of table silverware. I have used, but only on occasions when politeness demanded it, an instrument of this sort to loosen the kernels of an ear of corn.

W. B. McDaniel, 2d
Curator, Library
Historical Collections
College of Physicians of Philadelphia

Dear Sir,

The object shown . . . is a corn scorer, to simplify eating tough corn on the cob.

Henry F. Smyth, Jr.
Administrative Fellow
Mellon Institute
Pittsburgh, Pennsylvania

Books

Carcinogenesis, Mechanisms of Action

***G. E. W. Wolstenholme, Maeve O'Connor,* Eds. (Boston: Little, Brown & Company) $9.50**

Regulation of Cell Metabolism

***G. E. W. Wolstenholme, Cecilia M. O'Connor,* Eds. (Boston: Little, Brown & Company) $9.50**

In the introduction of the first volume, it is observed that no longer is cancer investigative work concerned as a major enterprise in the determination of just what substances serve as carcinogens or in procedures that establish such property. Already the list is extensive and appalling. The present focus centers about the mechanisms both exogenous and enogenous that eventuate in neoplastic growths. Much attention is devoted to the Oppenheimer phenomenon:

"Ten years ago, B. S. and Enid Oppenheimer and Stout (1948) published their chance observation that highly malignant fibrosarcomata had been found in rats, the kidneys of which had been wrapped with cellophane to produce hypertension. In their subsequent paper in 1952, they provided sufficient data to justify the claim to have discovered an entirely new group of carcinogenic agents for rats and mice. Whatever the chemical composition, a thin film of plastic when introduced subcutaneously, proved carcinogenic and so far no plastic material has been found which did not produce sarcomata in approximately 25% to 45% of the animals. Oppenheimer and co-workers (1953) eliminated decisively the possibility that adventitious impurities were responsible by establishing that the carcinogenicity was quite independent of the degree of purity of the polymer (e.g. the most pure polyethylene and polystyrene were somewhat more active than the commerical samples), and also by showing that all the most probable impurities, such as the monomeric starting materials and the catalysts (e.g. benzoyl peroxide), used in the preparation of some of the polymers were not carcinogenic when painted or embedded in pellets.

"A very strong argument against any hypothesis which requires the chemical interaction between a compound of the film and its neighbouring cells is the importance of the physical shape of the foreign substance. The same plastic materials when embedded in the form of powder or fibers fail to produce any tumours at all and when introduced as plain film, perforated film, woven or knitted cloth the tumour incidence invariably falls in this order. When foils of six different metals were used, malignant tumours were obtained with five, the exception being tin. The failure of this metal was attributed to its friability and in every case it was found to be 'broken up and crumbled into a fragmentary mess.' When thicker tin foil was used tumours were produced.

"The possibility that mechanical irritation may by itself be sufficient to act as a carcinogenic stimulus has often been considered and cannot be altogether disregarded. But irritation cannot influence the carcinogenicity of films since this is quite independent of film thickness which would cause varying degrees of irritation. Moreover the failure of fibers and powders to produce tumours, although they are probably more irritant than thin flexible films, seems to exclude this mechanism completely. The most likely process would appear to be that the film alters the normal environment of the neighboring cells in such a way as to favor the induction (or selection) of discontinuous variations leading to malignancy.

"One thing seems certain: the induction of tumours by plastic films is indirect and physiological processes are responsible for the malignant transformation. The carcinogen merely pro-

vides a favourable situation for these to occur."

There is no cause for apprehension that the ordinary usage of cellophane, nylon or any plastic may be associated with cancer causation. Contrawise, there are grounds for caution on the part of surgeons in connection with the implantation within the body of any long indwelling plastics.

Clinical Dermatology, For Students and Practitioners

***Harry M. Robinson, Jr.* and *Raymond C. V. Robinson* (Baltimore: The Williams & Wilkins Company) $8.50**

On examining this compact book some doubt arises about the necessity to the general practitioner and the industrial physician of those massive volumes so dear to the board certified dermatologists. This text is stripped for action but without riotous tabulation. This book "runs at you" in making diagnosis easy yet is no oversimplified "keyed" presentation. After a first portion devoted to the essentialities of dermatology the second and major portion is organized in standard form on the basis of the primary lesion. Knowing, for example, that a condition awaiting diagnosis foremostly is vesicular as to morphology, that fact becomes a path to the ultimate conclusion. Still the authors are not blinded to the obvious that in some states nearly all the primary lesions may appear. For this text the adjectives "concise," "practical," "unencumbered," are appropriate. One evidence of the immediately useful in the book is a set of history questions supplementing the general and customary history compilation. These are: How long has the eruption been present? Has anyone else in the family had a similar condition? Have there been previous attacks of this or similar eruptions? Has medicine been administered by mouth or by injection recently? What medications have been used to relieve symptoms; have headache remedies or laxatives been taken? Have x-ray or other "light" treatments for this or other conditions ever been given? What brand and type of cosmetics are used? What type of work is done? How long has it been done? What are the hobbies? Are working conditions pleasant? Do the working conditions aggravate the eruption? Does soap aggravate the eruption? Is the condition worse in summer or winter? What are the sleeping habits? What are the smoking habits? What are the whiskey drinking habits? What are the coffee drinking habits? Do any foods seem to cause the skin to "break out?" Are domestic relationships pleasant?

The word "empathy" fondly tossed around by the psychiatrists relates to the ability of one person to think and feel as another person. These authors, highly skilled dermatologists, exercise empathy and view dermatology through the eyes of the nondermatologic portions of the medical profession. Having viewed, they wrote and what they wrote assures an appreciative following.

Preventive Medicine, Principles of Prevention in the Occurrence and Progression of Disease

Ed. *Herman E. Hilleboe* and *Granville W. Larimore* (Philadelphia: W. B. Saunders Company) $12.00

At one medical school one course on occupational health for junior students consisted of 16 lectures each by a highly qualified specialist in the field. At the end of the course one student volunteered this appraisal; "We have had 16 beautiful introductions to occupational health and nothing else." In any book on preventive medicine with numerous contributors the threat ever is that there might be numerous beautiful introductions to preventive medicine and little else. Nothing of the sort characterizes this book with its 31 contributors. The able editors saw to it that every chapter writer lived in his own tent. The result is a high accomplishment in diversity of topics covered with continuity.

Every new book on preventive medicine must perforce provide its own special appeal to attention. The new flavor of this publication, and no lowly one at that, is its emphasis on the prevention of progression in diseases and defects already present. To that end 10 chapters are devoted to such topics as: Periodic Health Inventories, Cancer Detection and Screening, Screening Methods for Pulmonary Tuberculosis, Screening Methods for Heart Disease, Screening Methods for Diabetes Mellitus, Screening Methods for Hearing Defects and Visual Defects, Follow-Up of Screening and Diagnostic Examinations, Rehabilitation, Alcoholism and Narcotic Addiction.

There was a recent time when any book on preventive medicine, as reviewed in this journal, would be appraised in terms of the author's grasp of occupational health. This book would stand up well by that narrow gage, but that gage no longer is applicable. Specialty board certification for industrial physicians demands almost as much familiarity with total preventive medicine as with occupational health. The industrial physician should be as concerned with the threat of contaminated water supplies as a generality, as with the threat of poisoning by phenyl mercury dodecenyl succinnate as a particularity. More was expected of these two distinguished editors than from the common run of writers. That more is provided.

INDUSTRIAL MEDICINE AND SURGERY

ESTABLISHED 1932

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October, 1959

VOLUME XXVIII

NUMBER 10

Shipyard Eye

About 1940 there appeared on the industrial medical stage a then new and bizarre eye disease. At the beginning this condition was regarded as likely to be a readily communicable disease and safeguards against transfer from patient to patient were instituted. No major episode came about. In the ensuing years this disease has shown itself in many portions of the world but never in pandemic form. Likewise over the years an extensive lot of laboratory inquiry has been conducted. Many peculiarities attend this condition properly termed epidemic keratoconjunctivitis but more widely known in the vernacular as "shipyard eye."

One such peculiarity is the low order of transmissibility to other persons either clinically or under experimental circumstances. The well afflicted shipyard worker almost never carries his infection to his own wife or children. Yet in Japan, the same or related affection chiefly occurs in children and rarely is transmitted to the parents.

This entire situation ably is reported upon by Ernest Jawetz, M.D., in the *British Medical Journal*, page 5126, April 4, 1959. The author reveals much in the isolated paragraphs here included.

"The title of this lecture sounds rather mysterious, suggesting the adventures of a one-eyed pirate who sabotages shipyards. In fact, this account does have much in common with a detective story: it is replete with mystery, mistaken identity, a missing phial of poison, and the final denouement in which the hero of the beginning of the story turns out to be the villain.

"The adult is not highly susceptible to adenovirus infection, the eye being the sole portal of entry and the principal susceptible tissue. Infection is likely to occur only if a large inoculum is placed direct into the eye. Infection of the adult yields very small amounts of infective virus, so that spontaneous transmission is improbable. Spread from one adult to another must therefore depend on direct transfer of virus from one eye to another. The individual most likely to accomplish such a transfer appears to be a nurse or physician engaged in examining the eye. The extreme stability of extracellular adenovirus aids the persistence of infective virus in ophthalmic solution or on instruments. Thus E.K.C. in the Western world appears to be largely in iatrogenic disease. Because of the low spontaneous transmissibility of the infection, antibodies and immunity are infrequent in the general population. Thus virtually all persons exposed to the manipulations of an eye physician are

susceptible to infection, and should he disseminate virus an explosive outbreak ensues. The shipyard with its chemical and mechanical irritants brings many workers to the dispensary, where doctor or nurse may inoculate them with adenovirus type eight. Epidemics of "shipyard eye" continue to occur. This pattern appears applicable in the United States, Great Britain and Canada, and is well supported by factual evidence.

"At present adenovirus type eight unquestionably causes epidemic keratoconjunctivitis and it may well be the sole cause of this disease in its typical form. Thus it is proper henceforth to support the clinical impression of E.K.C. by laboratory evidence of infection with adenovirus type eight either by virus isolation or by the demonstration of a rise in specific neutralizing antibody titre. The mythical 'virus of epidemic keratoconjunctivitis' or 'Sanders virus' of textbooks may be discarded — the poison phial is lost forever. Finally — in North America and Great Britain at least — the hero of the beginning of the story, the eye physician, is the villain at the end. It is he who spreads the virus among his patients in shipyard, office and hospital, and who is responsible for outbreaks of the disease in the Western world."

This presentation provides two items deserving emphasis. The term "shipyard eye" is an unfortunate one. By no means is the disease limited to ship builders although it is linked in its occurence more particularly with just a few industries. In these few industries opportunities for chemical eye irritation may be recognized. When the term "brass founders' ague" is used, at once the implication is that something connected with brass founding is the causative agent. Such is the case. But as to epidemic keratoconjunctivitis the implication at once created by no means is justified. E.K.C. is not an occupational affection. Of greater significance is the recorded belief of the author that at this time this disease foremostly is spread from patient to patient through exposure in the doctor's office, the opthalmologist's, the industrial physician's, the hospital clinic. This belief if true, labels E.K.C. as an iatrogenic disease. A neat point at law would arise in case some workman with epidemic keratoconjunctivitis pressed the claim that his exposure only could have come about through one or more visits to the industrial medical clinic.

The purpose of this editorial now becomes manifest. Any case of this disease, not being of occupational origin, should not be cared for in the industrial dispensary. When for any reason medical care is undertaken, even on an emergency basis, extraordinary precautions are to be observed against the transmission of this viral infection to other workmen.

Leisure

Working with a powered hedge clipper a landscape gardener in 20 minutes may shape up a row of privet in better fashion than by a whole day's work with hand snips. Multiply that one statement by an appropriate number of thousands of others, add the word "automation" with all its implications and one faces the prospect of a marked increase in leisure for the United States workman. Already he has more leisure than any lot of workers in any country at any time. Yet still more leisure is in prospect.

Widely encountered have been assertions that the shift from preponderantly manual labor to more sedentary employment as brought about by automation will introduce both physical and mental affronts detrimental to the worker. Some harbingers of the dismal see only evil in any increased leisure. They hold out as believable that a five hour day inevitably will foster widespread "moonlighting" with all the perils of that practice. Two regular five hour jobs would not in their sum equal the customary length of the workday of only a few decades of the past. By no means condoning moonlighting, it is impossible not to admire those ambitious, or possibly only greedy workers, with gimp enough to undertake two regular remunerative tasks. These same apostles of doom see in leisure added incentives to alcoholism, to crime (on the theory that the idle mind is the devil's workshop), to increased traffic accidents, to inevitable obesity from unutilized calories in the body. These prophets of the perils of leisure confuse leisure with idleness, a monstrous error.

If the ability to use leisure intelligently is the last product of civilization, may it not be hoped that the leisure that lies ahead will see the overcrowding of libraries, the overfilling of all institutions of learning, the avid pursuit of avocations until in their perfection they become as important as vocations. Is it not potential that leisure skillfully embraced may make of every man a philosopher? Is not leisure properly espoused that which provides the dignity that every man seeks?

Some hundreds of years ago the Roman writer Seneca made the worm the symbol of leisure when he said, "Who has more leisure than a worm?" Seneca did not know all. The lowly earthworm is nature's great irrigation engineer. The earthworm is a foremost citizen of the land. Endlessly he utilizes his total leisure. If an earthworm can do as much with his leisure, surely every workman may find opportunity to turn his earned augmented leisure to good account.

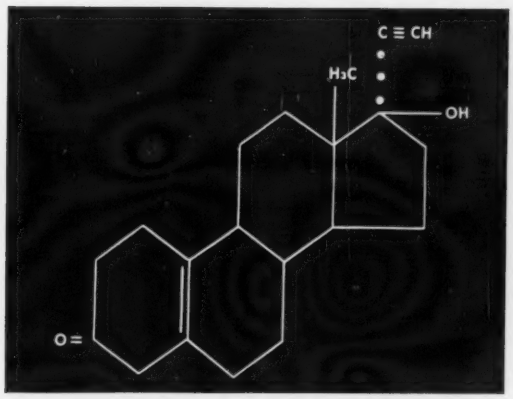
...threatened abortion

...habitual abortion

...endometriosis

ENOVID®

EXERTS NO ANDROGENICITY



NORETHYNODREL,
the principal constituent of Enovid, is the only progestin with the double bond in the position shown, thus differing from androgens and estrogens. Norethynodrel possesses intrinsic estrogenicity (3 to 7 per cent that of estrone) in addition to its potent progestational activity.

Thus, its administration is free of risks of virilism even on long-term administration at high dosage.

Each 10-mg. tablet of Enovid contains 9.85 mg. of norethynodrel and 0.15 mg. of ethynylestradiol 3-methyl ether. (—The estrogen is added in optimal amount to avoid breakthrough bleeding during prolonged use.—)

NORETHYNODREL...

1. The only steroid[1] with both progestational and estrogenic effects.
2. Retains its biologic integrity[2] following oral administration.
3. Is progestational and estrogenic in experimental animals.
4. Is progestational and estrogenic in clinical practice.
5. Is not androgenic[1] in experimental animals.
6. Is not androgenic[3] in clinical practice.

Enovid represents a positive advance in the treatment of threatened or habitual abortion[4] and in the treatment and control of endometriosis[5]. Physicians may prescribe Enovid confidently without producing androgenic manifestations.

DOSAGE OF ENOVID FOR THREATENED ABORTION

Two or three tablets daily on appearance of symptoms. This dosage may be reduced to one or two tablets daily when symptoms disappear. The reduced dosage should be continued to term and increased if symptoms reappear.

DOSAGE OF ENOVID IN HABITUAL ABORTION

Two tablets daily as soon as pregnancy is diagnosed and continued without interruption at least through the fifth month. Enovid may be safely continued to term if desired.

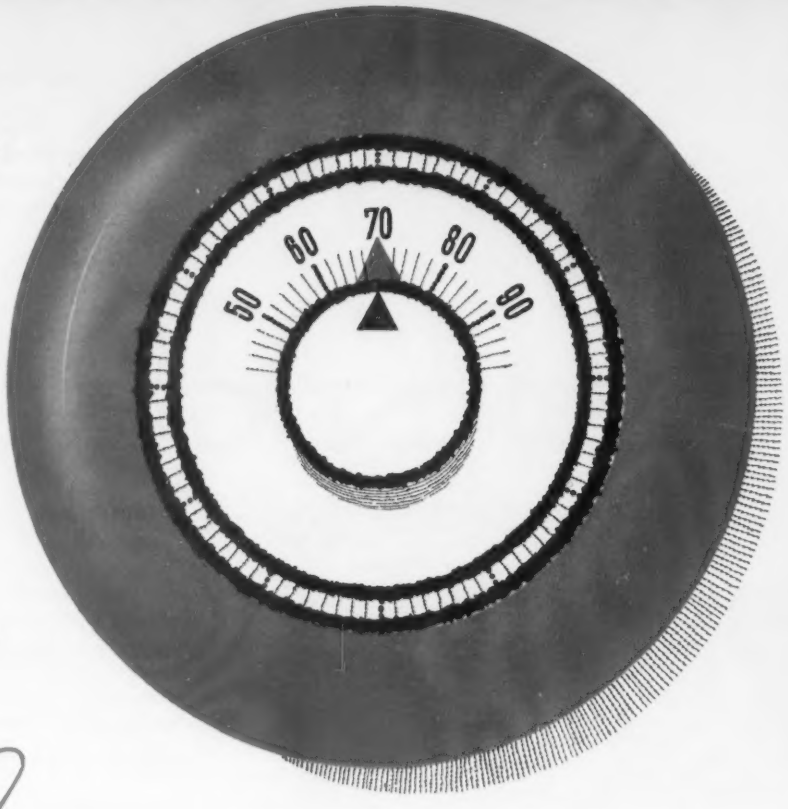
DOSAGE OF ENOVID FOR ENDOMETRIOSIS

The daily dose for the first two weeks is one tablet, two tablets daily for the next two weeks, then three tablets daily for the following two weeks and finally four tablets daily for three to nine months.

G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

1. Symposium on New Steroid Compounds with Progestational Activity, Ann. New York Acad. Sc. 71:483-805 (July 30) 1958.
2. Edgren, R. A.: The Uterine Growth-Stimulating Activities of 17α-Ethynyl-17-Hydroxy-5(10)-Estren-3-One (Norethynodrel) and 17α-Ethynyl-19-Nortestosterone, Endocrinology 62:689 (May) 1958.
3. Rakoff, A. E.: Pages 800-805 of reference 1.
4. Tyler, E. T., and Olson, H. J.: Pages 704-709 of reference 1.
5. Kistner, R. W., Endometriosis, in Conn, H. F. (editor): Current Therapy — 1959, Philadelphia, W. B. Saunders Company, 1959, pp. 610-612.

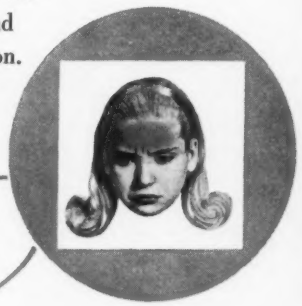
Acts to reset the 'thermostat' back to normal temperature



Superior to aspirin in antipyretic action

The hypothalamic nuclei play an indispensable role in regulating the peripheral mechanism concerned with the production of and the loss of body heat. As a result, the hypothalamus has been commonly termed the 'thermostat' of the body[1]. Anacin acts promptly to reset the thermostat back to normal temperature again. In fact, investigation by Brownlee[2] verifies that one of the components in Anacin (acetophenetidin) is superior to aspirin in reducing fever in hyperpyretic patients.

Anacin Tablets offer effective symptomatic therapy for the common cold. Anacin not only relieves the headache, malaise and grippal symptoms but also allays tension, restlessness and depression. Well tolerated, there's no gastric upset with Anacin.



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WHITEHALL LABORATORIES
NEW YORK, N.Y.

Reference: 1. Goodman, Louis S. and Gilman, Alfred: *The Pharmacological Basis of Therapeutics*, Sec. Ed., 1955. 2. Brownlee, George: *A Comparison of the Antipyretic Activity and Toxicity of Phenacetin and Aspirin*, Quarterly J. of Pharmacy and Pharmacology, 10:609-620.

COMMENT AND OPINION

Executive Health Clinic

A well known New York businessman, worried sick over an ailment which he feared would land him in the fine print of the death notices, recently made an appointment for a diagnostic examination at Executive Health Examiners, 20 E. 46th St.

He underwent a checkup and returned a week later to hear the bad news from the staff of medical specialists who operate the city's newest disease-detection center. But the news was good. He didn't have a bad heart. He had an infection which his family doctor could easily correct.

Dr. Richard E. Winter, the 37-year-old internist who conceived the idea of Executive Health Examiners and serves as its executive director, shook the man's hand and said:

"Now you can go back and enjoy your job."

"Enjoy my job!" the businessman exclaimed. "Now I can enjoy my life!"

The incident was one of the many rewarding episodes that have occurred since the new diagnostic center opened its doors June first.

Implementing low- and high-cost detection centers long established here, the new medical group has the avowed purpose to "establish a source whereby New Yorkers, either individually or through their companies, may gain the benefits of the early detection of disease conditions or tendencies at a time when prompt treatment may effect a permanent cure."

Dr. Winter has the strong conviction that people take better care of their cars than their carcasses and he assembled a staff of medical specialists to diagnose the ills of metropolitan mankind. By X-ray and X-pert, an applicant at the center gets his health picture — inside and out.

Stanley P. de Lisser, program director for Executive Health Examiners, put it this way:

"Many recent studies have demonstrated the dramatic results that can be achieved by periodic examinations — lives saved, fears and suspicions calmed, adoption of better health practices in our daily lives. There is a good deal of truth in the old saw about an ounce of prevention which Americans seem to neglect when it comes to their health."

The new medical group has specific programs to fit the needs of individuals and organizations, varying from cancer detection examinations for housewives to comprehensive physical and psychiatric evaluations for executives. Examining physicians are qualified by the American Board in their respective specialties. In the examination, a person is attended by a team of four physicians, three internists and one proctologist.

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distressing to the patient

perplexing to the doctor

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against recurrence and adverse reactions

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at pharmacies or direct
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RIASOL contains 0.45% Mercury chemically combined with soaps, 0.5% Phenol, 0.75% Cresol.

SHIELD LABORATORIES
Dept. IM-1059
12850 Mansfield Avenue • Detroit 27, Michigan

Inspection of EHE's air-conditioned facilities near Grand Central Terminal discloses a new, unclinical look for this type of detection center — modern furniture, lounges with coffee and doughnuts, TV sets and phones for calls to home or office and, indeed, a new look for the applicants themselves!

No more the open-back, rear view hospital gowns for the examinees. They wear doctor's uniforms while undergoing the various checks of the examination.

The doctors who do the examining come from their private practices to do part-time duty in the detection center. They are selected on the basis of their qualification and their desire to practice diagnostic or preventive medicine. They are not concerned with the examinee's financial resources and they are not permitted to treat a patient for his ailment.

Their one job is a once-every-5,000 miles checkup to see how the old bus is operating, plus a subsequent consultation and recommendations for greater mileage.

When it comes time for the examinee to receive his health scorecard, he usually finds himself facing a senior internist or general practitioner who evaluates the reports of the various examining physicians and the laboratory tests, then levels with the applicant.

If there is work to be done — and there often is — the applicant is advised to take his report to his family physician and do something for himself. If he has no family physician, he is urged to contact his county medical society to obtain the names of doctors in his neighborhood who can do the overhauling.

The average applicant, EHE reports, turns out to be a healthy individual. But he may be overweight and his cholesterol level may be a little high. So he gets a basic health talk and a suggestion that he have his own doctor prescribe a better diet.

Dr. Winter got his idea for the health examination 15 years ago. He found people desiring physical checkups had either to go to expensive, "lying-in" clinics or inexpensive but overcrowded hospital clinics. He felt there was a need for a middle-of-the-road establishment with a moderate charge, comfortable surroundings and a staff of well qualified examining doctors backstopped by leading specialists.

The larger business and industrial firms of the country have recognized the value of periodic medical examinations of officials and employees.

The National Industrial Conference Board reported recently that 86 percent of the big corporations provide periodic examinations for all their employees or selected groups and, in most cases, pay the checkup charges.

In addition to the daytime diagnostic sessions at EHE, a program of evening appointments has been established for persons wishing to undergo cancer prevention examinations.

The head of this division

An EDGE on them all
Cutting efficiency and maximum blade performance has always been the surgeon's first consideration when choosing a surgical blade. BARD-PARKER offers you a blade made with the same consideration in mind . . . a blade of carbon steel of course . . . so superior for fine cutting edges.
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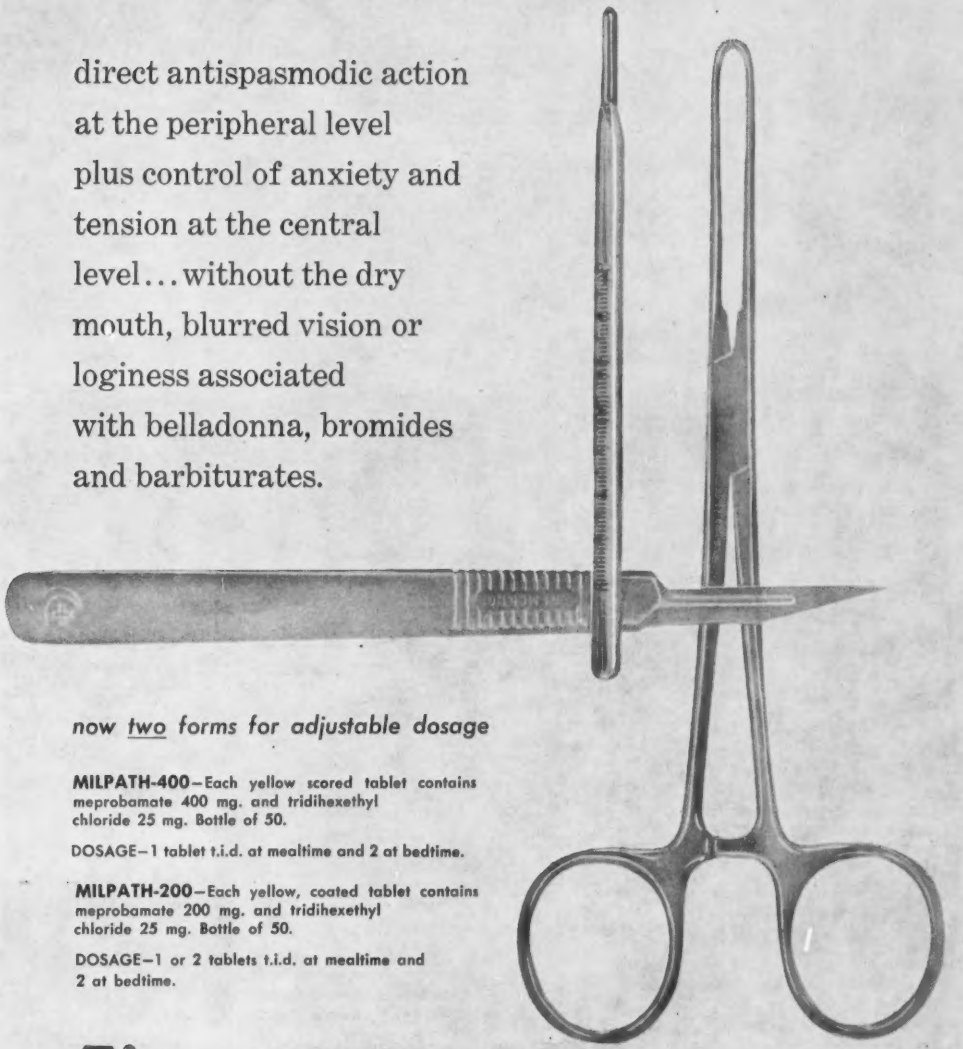

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MILPATH-400—Each yellow scored tablet contains meprobamate 400 mg. and tridihexethyl chloride 25 mg. Bottle of 50.

DOSAGE—1 tablet t.i.d. at mealtime and 2 at bedtime.

MILPATH-200—Each yellow, coated tablet contains meprobamate 200 mg. and tridihexethyl chloride 25 mg. Bottle of 50.

DOSAGE—1 or 2 tablets t.i.d. at mealtime and 2 at bedtime.

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- Independent 3-strap compression control. No laces to wear out. Allows pressure to be concentrated exactly where needed for maximum support.
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- Removable form-fit steel back stays.
- Air cooled. Hundreds of tiny perforations allow air to circulate through support to body.

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Dept. IN-109

811 Wyandotte Kansas City 5, Mo.

is Dr. Abraham Oppenheim, chief of the division of cancer control in the New York City Department of Health.

—From *New York* (N.Y.) *World Telegram & Sun*, August 1, 1959.

Playing Hookey

Habitual tardiness and poor job attendance, not incompetence, is the leading cause for dismissals of workers in private industry in Washington, D.C.

Absenteeism and tardiness account for about 30% of private industry dismissals in the Washington area.

This high rate of discharges because of absenteeism is cause for concern, says Ernest V. Connolly, assistant director for the U. E. Employment Service.

Turnover of workers is costly to business, he pointed out. It costs an estimated $300 to $400 to recruit and train replacements for discharged workers.

The percentage of dismissals for incompetence is slightly less than that for absenteeism.

A third major reason for employee firings is misbehavior.

Mr. Connolly said the absentee statistics lead to this conclusion: young people entering the labor force here "are not being conditioned for the responsibility of holding down a job."

The proper attitude toward job performance should be instilled while the younger worker is still being trained. This would indicate that "corrective action" should be taken at the school level and in other job-training programs.

In general, Mr. Connolly pointed out, turnover is not as great a problem in regard to older workers in the labor force. The older employee has reached a more responsible position, taking more pride in his work than the worker who is just beginning.

—From *Washington, D. C., Star*, August 16, 1959.

A Note from the Nurse

A return-to-work pass must be obtained from the plant nurse by employees of the Owens-Illinois Glass Co., Gas City, Indiana, who return to the plant after one or two days' absence. An absence of three or more days requires a clean bill of health from a doctor. These rules, the company explains, are to make sure returning employees do not have communicable diseases.

—From *Industrial Relations News*, August 15, 1959.

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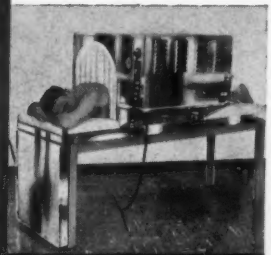
Delivers temperature-controlled moist heat safely and effectively. Complete with stainless steel treatment hood, table, latex foam table pad, nylon moistureproof curtains and 4-quart filling can.



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Orinase* makes it possible for you to lift this burden from most of these insulin-dependent patients. Given in conjunction with insulin, it smooths out the "peaks and valleys" of erratic blood sugar levels . . ."stabilizes" a surprising percentage of brittle diabetics.

At the same time, it may enable you to reduce the insulin dosage for many insulin-dependent diabetics.

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Deeply absorbed to permeate affected sensory endings, the proven local analgesic-anesthetic agents in GER-O-FOAM give relief in minutes, lasting for hours in . . . rheumatoid arthritis, osteoarthritis, muscle sprain, fibromyositis, low back pain, etc.

IN A NEW CLINICAL STUDY[1] GER-O-FOAM gave "satisfactory" results in 85% of chronic musculoskeletal patients. Response was "striking" in certain intractable acute conditions . . . "permitting functional exercises otherwise impossible."

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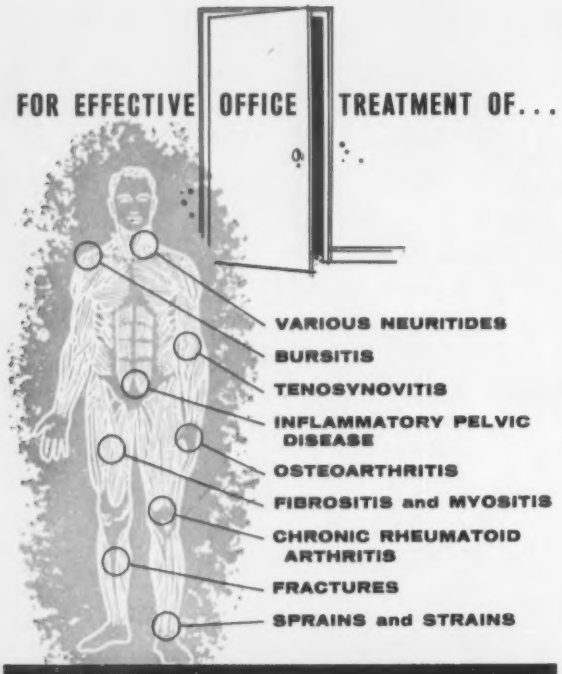

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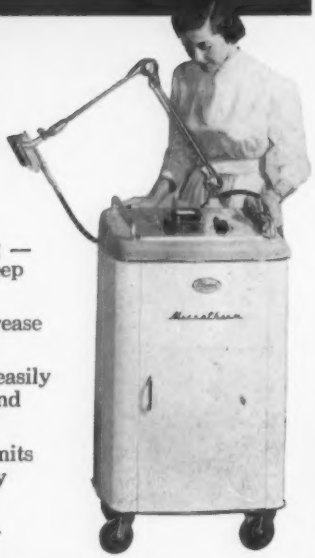

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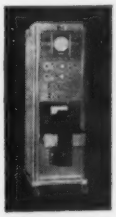

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Medical Director: After 7 years as Staff physician, important industry, 7 years as Medical Director, important division of one of America's largest automotive industries; well-qualified chest diseases; seeks Medical Directorship in corporation involving multiple plants; prefers Midwest or East.

Medical Director: Two years, private, general practice; 8 years, Medical Director, Nat'l co; intermittent courses, Internal Medicine & Cardiology, '52-'58; tired of travel assignment & desires regular hours, Indus Med post; prefers E. or Calif, will consider others.

Medical Director: Seeks greater responsibility in Industrial field; graduate, St. Louis Univ Med Schl; completed excl, 3-year residency, genl & ortho surgery; 2 years, Asst Med Dir; 3 years, Medical Director, large companies; middle 30's.

Medical Director: Nine years, private practice; 3½ years, medical officer, U. S. Army; Six-and-one-half years, Medical Director, large nationally famous co; seeks position with advancement potential; any locality; middle 40's.

Medical Director: Degree, Tufts Medical School; has served over 10 years as Medical Director; seeks interesting work, industrial field; will consider Insurance Medicine.

Medical Director: Two years, medical officer, USAF; six years, senior industrial physician, large, important corporation; seeks Medical Directorship, preferably in chemical with radiation problems; prefers Tennessee or South; Age 33.

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Staff Physician: Working toward Certification, Occupational Medicine; M.I.H. Harvard School of Public Health; 18 months, Internal Medicine residency; seeks Industrial permanent post, full-time; East or Midwest.

Staff Physician: Two years, USAF medical officer; two years, private practice; two years, plant physician; two years, private practice and also, medical examiner; seeks New England location; Age 39.

Staff Physician: One year, rotating internship; two years, Battalion surgeon, U.S. Army; three years, Indus Med residency; seeks Industrial Medicine post, Southwest or California; Age 30.

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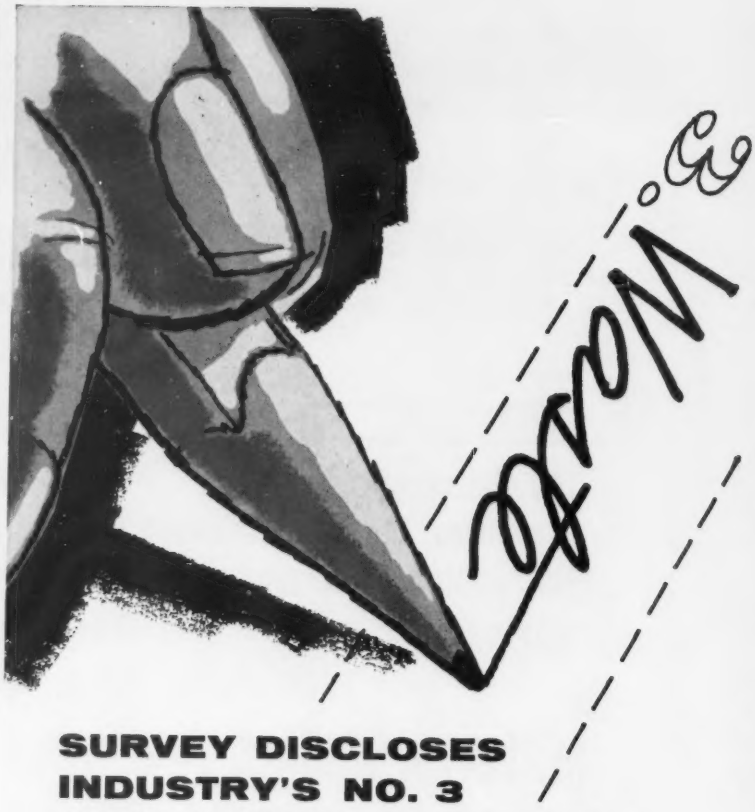
Staff Physician: Two years, Flight Surgeon; post-graduate work; atomic, biological & chemical defense; one year, staff physician, Alaskan Clinic; seeks Western or Mountain States; Age 34.

POSITIONS OPEN

SURGEON: Young; experienced or trained, Industrial Medicine; qualify to Direct Dept., in six months; well-staffed dept; regular hours; 3500 employees; $16-18,000; university city, 50,000, Midwest.

Full-Time Industrial Physician: One with well-rounded, general medicine and hospital experience (Genl Practitioner, Internist, recent graduate, or retiring military officer would have excl qual'ns for this type of work); ass'n, outstand'g med dept, company of 5,000; $12-15,000; univ city, N.E.



SURVEY DISCLOSES INDUSTRY'S NO. 3 SKIN HYGIENE PROBLEM: WASTE SOAP

Here's The Answer To It From SBS

The most difficult three industrial skin hygiene problems, as rated by 2,177 major plants recently surveyed, are:

1. *SKIN DISEASE*
2. *REMOVAL OF TOUGH SOILS*
3. *WASTE OF SOAPS*

Closely associated with the actual problem of skin disease is the costly waste of soaps in *all* plant areas. Liquid soaps run off hands too easily, other types melt or spill. Where wasted soap accumulates, extra housekeeping expenses are involved, sub-sanitary conditions exist and worker dissatisfaction mounts. Often the combined cost of soap waste and resulting maintenance can add up to more than the original cost of the soap supply. Small wonder industry rates it as such a problem!

What's the answer to it? Ask an SBS representative to show you "Operation Pinpoint", 10 minute sound slide digest of the national survey, and you'll see how a *planned corrective program* can solve all these skin hygiene problems. Since SBS produces a *complete range of cleansers*, he can suggest the right cleanser for each job. For the safest, savingest answer to skin disease, tough soils, and soap waste, write today . . . Dept. 7J.

the washword of industry

SBS sugar beet products co.

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CANADA: Chemical By-Products, Ltd., Toronto, Ontario

with new Sinutab*

Sinutab aborts pain, decongests and provides patient-comfort

Sinutab aborts pain with two analgesics, systemically opens air passages to relieve stuffiness and congestion and provides patient-comfort with mild tranquilization.

DOSAGE: *Adults,* two tablets every four hours. Prophylactically, one tablet every four hours. *Children 6 to 12 years,* one-half adult dose. SUPPLIED: Bottles of 30 tablets. SINUTAB FORMULATION: N-acetyl-para-aminophenol (APAP), 150 mg., (2½ gr.); Acetophenetidin, 150 mg., (2½ gr.); Phenylpropanolamine HCl, 25 mg., (⅜ gr.); Phenyltoloxamine Dihydrogen Citrate, 22 mg., (⅓ gr.)

WARNER CHILCOTT
MORRIS PLAINS, N.J.

*TRADEMARK

For Quality without Question... Enjoy the unique refreshment of sparkling Coca-Cola

SIGN OF GOOD TASTE

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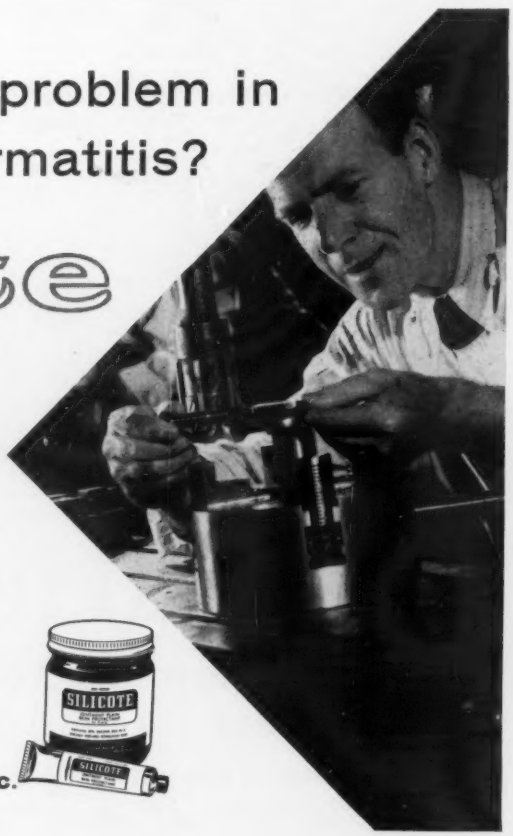
do you have a problem in industrial dermatitis?

Silicote

SILICONE SKIN PROTECTANT



Silicote provides an effective barrier against a wide range of skin irritants. It adheres to the skin, is not easily removed, and, when properly applied, can not be seen nor felt on the skin, permitting workers performing delicate tasks to stay on the job.

PROTECTS AGAINST

—water, acids, alkalies, foods, organic materials, resins, cement, tanning solutions, inks, polishes, woods, glue, coolants, soluble cutting oils, rubber, plastics, synthetics, dyes, metals, paints, lacquers, thinners, etc.

IN TREATMENT

of contact dermatoses, Silicote clears up many cases not responsive to other therapy.

Silicote is the only preparation containing 30% silicones (dimethicone) in specially prepared petrolatum base. Silicote is non-occlusive.

May we work with you in your particular problem? Send for clinical supply.

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relieves painful muscle spasm, improves mobility, facilitates rehabilitation...

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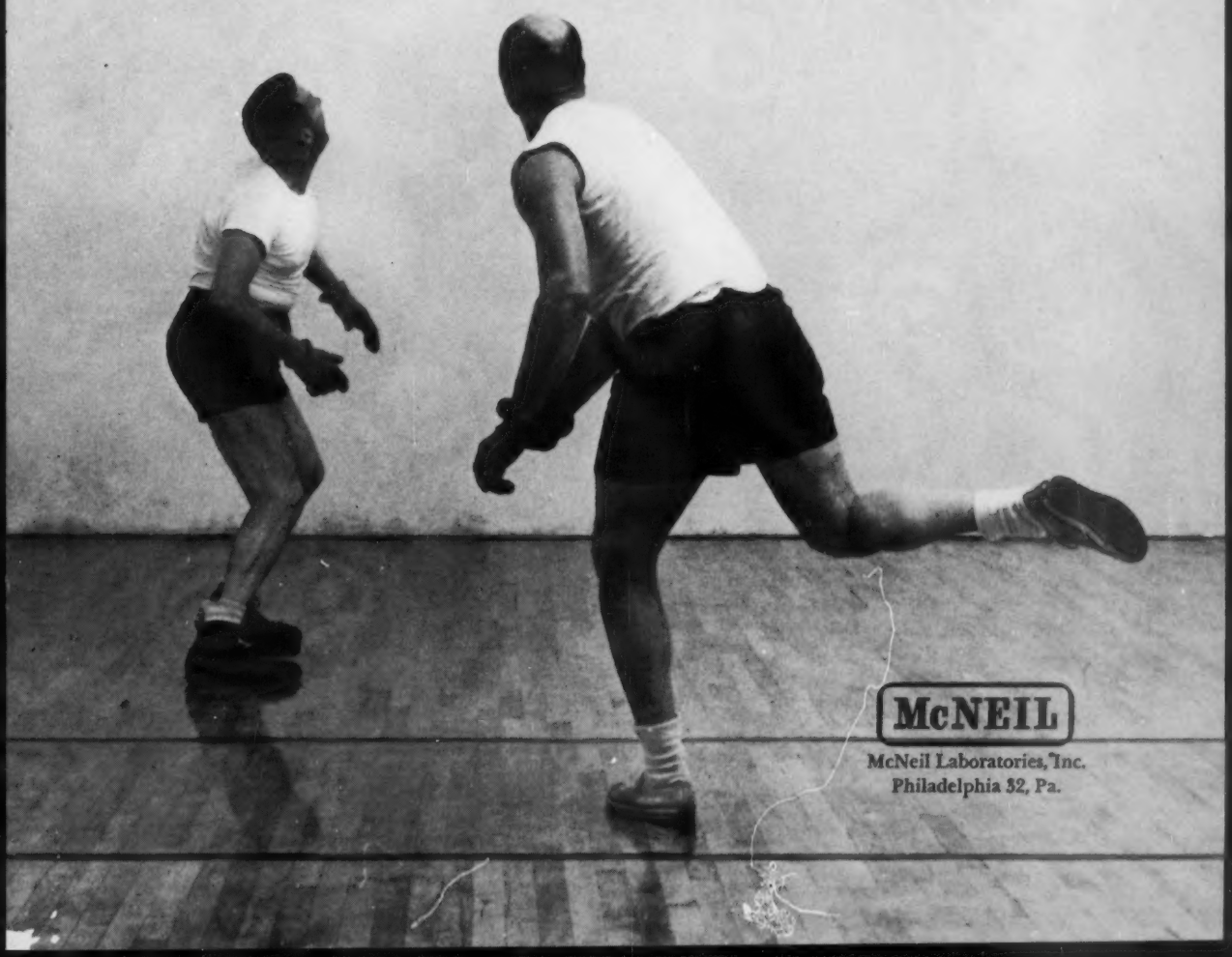
Chlorzoxazone*

PARAFLEX provides effective skeletal muscle relaxation for about 6 hours with a 1- to 2-tablet dose. It relieves pain and stiffness and improves function in a wide variety of orthopedic, arthritic, and rheumatic disorders. It may be used alone or with other agents indicated in the management of skeletal muscle spasm. It is especially valuable when used in conjunction with physiotherapy and other rehabilitative procedures. Side effects are rare, almost never require discontinuance of therapy.

Dosage: ADULTS—1 to 2 tablets three or four times a day.
CHILDREN—½ to 2 tablets three or four times a day, depending on age and weight.
Supplied: Tablets, scored, orange, bottles of 50. Each tablet contains PARAFLEX, 250 mg.

*U. S. Patent Pending 256A59



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Krantz, J. C., Jr.: The restless patient—A psychologic and pharmacologic viewpoint. Current M. Digest 25:68, Feb. 1958.

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